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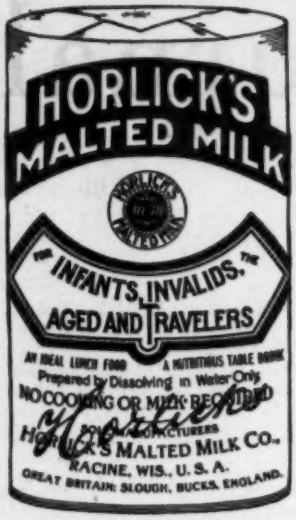

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Original Articles

APPENDICITIS COMPLICATING PREGNANCY.

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CHICAGO

Appendicitis attacks all ages and both sexes. Though distinctly a surgical disease, it is also of great practical interest to gynecologists, obstetricians and general practitioners.

The frequency of appendicitis in the female, pregnant or non-pregnant, is underestimated and its significance not fully appreciated. It is often overlooked, misdiagnosed, and therefore improperly treated. The autopsy findings often bring the first intimation of the true cause of the clinical picture.

To serve our fellow practitioners, we collected, analyzed and studied the original reports of all the operated cases of appendicitis occurring during pregnancy, that are to be found in the French, English and German medical literature from 1900 to 1915 inclusive, and also some unpublished personal cases. Cases reported with insufficient data were not considered.

The subject will be discussed under the following subheads:

1. Incidence.
2. Etiology.
3. Combined appendicitis and extra-uterine Pregnancy.
4. Pathology.
5. Coexisting conditions.
   Influence of pregnancy upon appendicitis.
   Influence of appendicitis upon pregnancy.
6. Diagnosis.
7. Differential diagnosis:
   (a) Maternal.
   (b) Fetal.
8. Prognosis.
9. Treatment:
   (a) Prophylaxis.
   (b) Indication for operation.
   (c) Operative.
10. Post operative sequelae.
11. Summary.

Incidence. During the child bearing age, woman is at no time exempt from attacks of appendicitis. In forty-six of our selected cases, the age is not stated. The remaining patients were at time of operation:

Under 18 years..... 3 cases
18 to 20 years, inclusive.....13 cases
21 to 25 years, inclusive.....33 cases
26 to 30 years, inclusive.....42 cases
31 to 35 years, inclusive.....23 cases
36 to 40 years, inclusive.....12 cases
One patient 42 years.

The condition occurs in primiparæ and multiparæ; in, first, early and late pregnancies; in single and twin pregnancies. Appendicitis can coexist with other disease processes to which it may be primary, secondary or coincidental.

In the cases forming the basis of this article there are noted thirty primiparæ, twenty deutiparæ, thirty-seven multiparæ.

The number of previous pregnancies, if there were any, is not stated in eighty-three cases. Appendicitis occurs at all periods of gestation. In some cases, the disease antedated pregnancy; some cases were operated on early with reference to onset of symptoms; some late. It is recorded that operation was indicated and performed:

During the first three months of gestation, 40 times.
From 4 to 6 months, inclusive, 60 times.
From 7 to 9 months, inclusive, 28 times.
Period of gestation not stated, 45 times.

Etiology. The etiology of appendicitis in a pregnant woman is the etiology of appendicitis in the non-pregnant woman. It is the belief of many clinicians that gestation does not exert any influence, good or bad, upon the normal appendix.

Appendicitis is primary or secondary; it may be secondary to disease of the uterine adnexa, just as inflammatory diseases of the tube and ovary may be secondary to an appendicitis. Recurrent attacks of appendicitis may be precipitated by pregnancy, labor or puerperium. Pregnancy can provoke acute inflammatory disturbances in an appendix bound down by dense adhesions or containing a foreign body, one or more fecal concretions, or worms. The appendicitis complicating pregnancy may be the patient's first attack. It may have been preceded by one, two, three or more attacks of greater or less severity.

Combined Appendicitis and Extra-Uterine Pregnancy. In some of the reported cases in which appendicitis and ectopic pregnancy were associated, it was not determined which of the two conditions antedated the other; which was primary and which was secondary.

When an appendicitis precedes a tubal pregnancy in which it apparently plays an etiological role, the anatomical changes frequently evolute as follows:

1. Appendicitis.
2. Peri-appendicitis.
3. Peri-adnexitis.
4. Formation of inflammatory adhesions interfering with tube mobility and tube function and producing tubal malformation.
5. Tubal pregnancy.

All these conditions favor the ectopic implantation of fertilized ova. Appendicitis may hasten tubal abortion through local infection, through general intoxication, may lead to suppuration of hematoceles of fetal cysts.

To differentiate appendicitis from extra-uterine pregnancy is at times difficult. In the unruptured state, the pregnant tube gives symptoms analogous to those of chronic appendicitis. An infected hematocele presents the signs of suppurative pelvic peritonitis. Peritoneal hemorrhage due to a ruptured tubal gestation sac has symptoms closely resembling a diffuse septic peritonitis. Positive Abderhalden test, absence of fever, vaginal hemorrhage, symptoms of internal hemorrhage will point to tubal pregnancy. It is interesting to make an exact diagnosis, but as both diseases are surgical affections exposing mother and fetus to serious danger, the watchword in both conditions should be early operation. Appendicitis calls for prompt operative treatment; extra-uterine pregnancy is an emergency condition calling for immediate ablation of the ectopic fetal sac.

In all the cases of appendicitis and extra-uterine pregnancy herein considered, twelve in number, operation gave excellent results. The findings differed in nature and consequently the operative procedures varied in extent in the different cases.

Pathology. Acute and chronic inflammation of the appendix involve the organ, in part or its entirety, and are associated with catarrhal, fibrinous, sero-fibrinous, sero-purulent, or purulent exudates present in the cavity of the appendix, in its wall, or around it. The inflammatory process may be limited to the mucous membrane, may involve part of or the entire thickness of the appendiceal wall.

The appendix veriformis may be partly or wholly intra- or extra-peritoneal. A retro-peritoneal or extra-peritoneal appendix the seat of suppurative inflammation gives rise to retro-peritoneal or extra-peritoneal pus collections. Adhesive inflammation may lead to permanent fixation of the appendix, to one or more abdominal viscera normal or pathologic, to the abdominal parietes, or to both. Inflammatory adhesions involving the tube may angulate it, constrict it; may interfere with tubal mobility and tubal function, may change its course and play a fairly important role in the etiology of sterility. The appendix during a 280 day pregnancy may touch every organ of the abdomen. Pus in quantities, large or small, may be present within the cavity of the appendix, in its wall or around it. Acute suppurative inflammation of the uterus and tubes may be set up by direct extension from an acutely inflamed appendix. The walls of appendiceal or peri-appendiceal abscesses are formed in part by one or more of the following organs: uterus, adnexa, omentum, intestine, small or large, etc. An appendicular abscess may bulge into the posterior cul-de-sac, may open spontaneously into the uterus, vagina, rectum.

The inflammation proceeded to the state of gangrene in twenty-four cases; in eleven of these cases one or more perforations were present. The gangrene may be limited to the mucous membrane, may affect the entire appendiceal

wall or the entire organ. Any part of the organ, tip, middle, base, may be gangrenous. Fecal concretions, one or more, were present in thirteen appendices. It is easy to understand how inflammation migrates from the appendix to the Fallopian tube, to the pregnant uterus, etc. These instances of pelvic inflammatory processes extending by continuity or contiguity of tissue, occur in the pregnant as well as the non-pregnant. Distal pus collections are due to metastases by way of the lymph or blood channels. In the ulcerative type of inflammation the ulcer extends in depth and in surface area; when all the coats of the appendix have been burrowed through, a perforation results. The apex, the base, or any other part of the appendix may be the seat of perforation.

Coexisting Pathological Conditions. Coexisting pathological conditions are primary or secondary to the appendiceal inflammation or merely coincidental, bearing no relation of cause or effect to it. It is not uncommon for appendicitis in the female to be complicated by or associated with tubal and ovarian diseases: salpingitis, pyosalpinx, hydrosalpinx, ovarian abscess, tubo-ovarian abscess, parametritis, etc. Close anatomical association of the appendix with the uterus and the adnexa explains the frequent simultaneous involvement of these organs in disease processes.

Influence of Pregnancy Upon Appendicitis. Upon a normal appendix, gestation has little or no influence. Upon an appendix, the seat of previous or latent disease, pregnancy exerts an unfavorable influence. It can intensify an existing inflammation. It may cause a previous inflammation to occur. In view of this possibility many of our best clinicians recommend and practice the removal of the appendix in woman married or about to be married, who have had one or more attacks of appendicitis non-operatively treated.

The pregnant uterus as it ascends in the abdomen commonly displaces the cecum and the appendix from below up, from right to left and from behind forward. In enlarging, the uterus may stretch existing inflammatory adhesions; it may displace, twist, and kink the appendix and thereby whip into activity latent appendicular infections. Pregnancy is a serious complication of appendicitis: 1. When the appendix is adherent to the uterus; 2. When it is the seat of an inflammation, perforative, gangrenous or suppurative in type; 3. When its inflammation leads to abscess—formation, near or distal; 4. When the uterus forms part of the wall of an appendicular, peri- or para-appendicular abscess. In the aforementioned conditions, adhesions may be torn, abscesses may be ruptured by the enlarging uterus.

Influence of Appendicitis on Pregnancy. Appendicitis is a menace to the mother's life, it is a menace to the gestation. The danger increases with the advance of gestation and is most marked after the fourth month. Infection can and does spread from the appendix to the genital organs by way, 1, of the peritoneum (localized or diffuse peritonitis); 2, of the appendiculo-ovarian ligament; 3, of adhesions existing between the uterus and a perityphlitic pus focus; 4, of the Fallopian tube.

Even a mild case of appendicitis may lead to a plastic peritonitis closing permanently the lumina of both tubes. From inflammatory adhesions may result dysmenorrhea, subinvolution, sterility through inflammatory closure of tubal ostia, habitual abortion, extra-uterine pregnancy, a tendency to uncontrollable vomiting, etc.

Appendicitis in the pregnant state may or may not terminate pregnancy. The prognosis is good as to non-interruption of pregnancy: 1. When the appendix does not hang in the small pelvis; 2. When the inflammation is limited to the appendiceal mucosa; 3. When it does not extend beyond the appendiceal wall; 4. When the appendiceal abscess is small.

Premature termination of gestation either by fetal death, fetal expulsion, or both, may be caused by: 1. Sequels of previous appendicitis, acute or chronic; inflammatory adhesions, old or recent, preventing uterine expansion; 2. Infection from the appendix extending through the tubes to the uterus and its contents; 3. Infection reaching the placenta through lymphatic and vascular channels; 4. Metastatic inflammation of the placenta disturbing its circulation; 5. Local irritation; 6. Fatal effect of hyperpyrexia upon ovum.

The further pregnancy is advanced the greater danger of abortion after operation. The chance of abortion after early operation is very small, indeed, for the operation is then done before an extensive inflammation has involved the uterus or an abscess rendered the patient septic.

Tendency to abortion is small in clean cases, as in this type the operative manipulation is reduced to a minimum.

In 173 cases of appendicitis herein studied it is stated that abortion was artificially induced nine times and occurred spontaneously forty-nine times. Caesarean section was performed four times, abdominal once, vaginal three times.

In eighty-three cases, pregnancy was not interrupted by the operation. In seventeen cases, no definite statement is made.

Diagnosis. Appendicitis is not as frequently misdiagnosed as formerly. Increased familiarity with the condition enables us to make an earlier and more timely diagnosis. It is an established fact that the morbidity and mortality of this disease can be lessened if it be diagnosed and operated on, before the advent of complications, perforation, gangrene, abscess formation, peritoneal involvement, etc. The diagnostic difficulties increase with the advance of gestation and persist during the puerperium.

The symptomatology of appendicitis in the pregnant is the symptomatology of the disease in the non-pregnant. Nevertheless, the recognition of the condition is made more difficult by various factors. One or more of the cardinal symptoms may be lacking. The symptoms and signs may not be sufficiently pronounced to lead to careful investigation or may be classed among the various disturbances incident to pregnancy.

During pregnancy the abdominal walls are on the stretch; they lack the softness and pliability so essential to careful and satisfactory abdominal palpation. In very fleshy patients palpation does not give definite findings.

The seat of pain though always corresponding to the site of the inflamed appendix, may be abnormally high. The leukocyte count gives uncertain findings; at best, it has only relative or corroborative value.

Mistakes are less likely to occur by keeping in mind (a) that every pregnant woman is to be examined for physical defects; (b) that the history is all important—ask about previous attacks; (c) in gravid women all attacks of indigestion associated with vomiting and fever should arouse suspicion and demand a careful examination of the abdomen; (d) right iliac pain unassociated with uterine contractions should lead one to think of appendicitis; (e) deep-seated retro-cecal and other abscesses may be detected by rectal examination; (f) peri- or para-typhlitic abscesses may be detached by vaginal examination.

In a pregnant woman, acute abdominal pain of a sudden onset, at first diffuse and then remaining localized to the right iliac fossa, suggests appendicitis; more so if the patient gives the history of previous attacks.

Differential Diagnosis. During gestation, many conditions simulate appendicitis. As most of these conditions demand operative relief, the resulting diagnostic mistakes are embarrassing and humiliating to the surgeon, but not commonly disastrous to the patient. In adnexal disease the pain and the objective findings are most always bilateral, while in appendicitis they are unilateral and the pain, as a rule, is more acute. Non-ruptured right tubal pregnancy simulates and is frequently diagnosed chronic appendicitis. Rigidity and tenderness over McBurney's point are seldom marked in extra-uterine pregnancy. Intelligent interpretation of the clinical history and of the objective findings, furnished by a careful and thorough abdominal, rectal and vaginal examination helps one to arrive at a correct diagnosis. Abscesses in the pouch of Douglas, due to perforative appendicitis, have been wrongly attributed to primary uterine and tubal infection; right-sided parametritis, due to the spreading of a retro-colic appendicitis, has been diagnosed ordinary puerperal infection.

In pyelitis, ureteritis, ureteric calculus of the right side, one is guided by the urinary symptoms and findings. Hepatic colic has a sudden onset with pain in the right upper abdominal quadrant; this pain radiates toward the right shoulder and is usually apyretic. The pain of nephritic colic descends and radiates toward the external genitalia. In fecal impaction, the symptoms are less severe and yield to colonic injections and to laxatives.

In advanced pregnancy, the differential diagnosis between appendicitis and cholecystitis may prove difficult owing to the associated upward displacement of the cecum and appendix by the pregnant uterus.

Prognosis. Pregnancy increases the severity and the fatality of appendicitis. Death may be due to intestinal obstruction, to perforation of the appendix, to heart failure, to peritonitis or to sepsis. Recovery takes place through the gradual

subsidence of symptoms; through the spontaneous rupture of an appendicular abscess externally, or into the gut, vagina, urinary bladder, uterus, or other hollow viscus.

The type and the acuity of the inflammation influence the prognosis. The prognosis is good if the changes in the appendix are slight, if the inflammation is limited to the appendiceal wall; if there be slight or no peritoneal involvement, if complications be absent. It is grave in gangrenous, perforative and suppurative appendicitis, and in all cases complicated by abscess formation near or distal, or by diffuse peritonitis. The results for the mother and fetus are better, the less advanced the gestation, the less virulent and widespread the inflammation, the earlier the operation. Maternal mortality of appendicitis in pregnancy increases from the fourth month on.

As far as the child is concerned, prognosis is absolutely good in cases of appendicitis operated on early. Severe maternal appendicitis is exceptionally grave for the fetus, who succumbs either through infection or through interruption of pregnancy. In our cases there were fifty-eight abortions; of these nine were induced and forty-nine were spontaneous. The spontaneous abortions gave seventeen maternal deaths and thirty-two recoveries. The induced abortions gave four maternal deaths and five recoveries.

Prophylaxis. The cause of appendicitis is not known. Therefore, in the present state of our knowledge a discussion of the prophylaxis of appendicitis, of necessity must be and is incomplete, inadequate and inconclusive. The importance of constipation as an etiological factor in appendicitis is as yet undetermined. We do not know how to prevent appendicitis, but we do know how to lessen its morbidity and mortality. Some surgeons remove the appendix during the course of all laparotomies. The removal of a healthy organ because one is not certain that it will always remain free of disease is unnecessary, meddlesome, and contrary to the teachings of conservative surgery.

In all laparotomies for conditions other than appendicitis, if the patient's condition permits, the appendix should be examined and removed: 1. If it be abnormal in length, size or location. 2. If it be in close relation to a pedicle or denuded surface, left by operation. 3. If its cavity be partly or wholly obliterated. 4. If it be the seat of anatomic alterations, club-shaped, thickened, kinked, twisted, strictured, etc. 5. If it contain foreign bodies, fecal concretions, worms, etc. 6. If it be adherent, in part or in its entirety, to some normal or diseased contiguous organ or to the abdominal parietes. 7. If it be the sole content or one of the contents of a hernial sac. 8. If it be the seat of cystic, neoplastic or inflammatory disease.

Operations that contribute to the safety of a pregnant woman should be performed without hesitation.

Indications for Operation. Clinical cures obtained by medicinal measures are rarely anatomical cures. Starvation treatment is debilitating to the mother, is unfavorable to the fetal growth. Perforation, abscess, general peritonitis, subdiaphragmatic abscess, thrombosis and embolism are possible results of expectant treatment. Better to remove too many appendices than too few. Be not deterred by the possibility of a difficult operation for the results of early operation are satisfactory and the mortality low.

Operate early in the attack and early in the course of pregnancy. As a general proposition, operation does not interrupt pregnancy. The triumphs of ovariotomy and hysterectomy in pregnancy are well known; in appendicitis operation is even more urgent. Accumulated instances are on record in which pregnant uteri have been operated upon, cauterized, etc., in which ovarian and other pelvic tumors have been removed without pregnancy being terminated. The high mortality of appendicitis in pregnant women is due to fatal temporization. Placental, uterine and peritoneal infections are such serious complications that one should, if possible, operate before the inflammatory process has extended beyond the appendiceal wall, before abscess formation has taken place, before the onset of peritoneal or other complications.

Operate early in gestation. At that period the uterus is not large enough to be in the way. The operation is less difficult; the tendency to the interruption of pregnancy is minimal and the percentage of maternal recoveries is higher. The danger of recurrence in the latter months of gestation calls for operation during the attack; if that be not feasible an interval operation should be performed as long before the labor as possible.

Operation in fifty cases of non-perforative appendicitis gave only one maternal death and seven abortions. In fifty-five cases of diffuse peritonitis secondary to appendicitis, there were forty-four maternal deaths, only one child was saved, all the others were born prematurely or died soon after birth from weakness, or the illness of the mother resulted fatally before the termination of labor.

Treatment.—Interruption of pregnancy is not indicated; it increases the danger. Rest should be enjoined; during the operation, the uterus should be handled and exposed as little as possible; after the operation opiates should be administered. In a clean case the operative manipulation is slight. Artificial evacuation of the uterus before laparotomy is indicated only when the child is dead or when there are appreciable signs of labor. If the uterus be artificially emptied before the seventh month the child will be definitely lost and the patient not improved. By evacuating an appendiceal abscess before emptying the uterus one avoids flooding the free peritoneal cavity with pus. Operations for appendicitis are performed under local or general anesthesia. Some operators resort to lumbar anesthesia. Operate as rapidly as is consistent with thoroughness and the patient's welfare.

The operation of election is appendectomy, the technic of which is little influenced by the presence of pregnancy. The same surgical principles are applicable in the pregnant as in the non-pregnant.

When in doubt as to whether the case is one of appendicitis, salpingitis, tubal pregnancy, or other pathological conditions, use a suprapubic median incision. This incision affords easy access to most of the pelvic contents and though it is not the incision of election for exposure of the appendix, it is a very serviceable incision. In cases of combined appendicitis and salpingitis, combined appendicitis and tubal pregnancy, combined uterine myoma and appendicitis, etc., the median infraumbilical incision should be employed.

In 125 of our cases the appendix was removed; in forty-three cases it is not stated whether it was removed or not. In five cases it was sought but not found, and therefore, not removed. Each of these cases presented an abscess, which was evacuated and drained. If the appendix be imbedded in a mass of firm inflammatory adhesions it can be removed by shelling it out of its peritoneal coat.

An appendiceal abscess should be opened at its point of maximal bulging; preferably through a cutaneous surface. If the appendix be not easily found, be content with incising the abscess, evacuating its contents, and resorting to tube or gauze drainage. A subsequent operation will rarely be required to remove the appendix. Appendiceal abscesses have been opened and drained through the vagina. Appendiceal abscesses have also been opened through the rectum. These are exceptional procedures; methods of necessity, not of election.

The post-operative treatment is that which is employed in the non-gravid modified only by a longer sojourn in bed, thereby giving time for firm consolidation of the operative wound.

Post-Operative Complications and Sequelae. In cases of such widely different nature as those herein studied, operated on in different surroundings and by different operators, one is not surprised to find noted the occurrence of post-operative complications and post-operative sequelae. The danger of hernia development after timely operations for appendicitis is practically nil. The protection of the operative scar by the aid of adhesive plaster has been recommended. See that labor be not unduly prolonged.

Among the sequelae reported in these cases were four ventral hernias, three cases of diffuse peritonitis, thrombosis of femoral veins, phlebitis, subphrenic abscess, intestinal fistula, etc.

SUMMARY.

1. Appendicitis occurs at all ages and in both sexes. It presents to all medical men important diagnostic, prognostic and therapeutic features.

2. Appendicitis acute, or chronic, initial, relapsing or recurrent, primary or secondary, complicates pregnancy with greater frequency than is believed. It is the most important complication of pregnancy.

3. It occurs in single and twin gestations; in first, early and late pregnancies, in primiparæ, deutiparæ, and multiparæ.

4. It occurs at all periods of the child-bearing age and at all periods of gestation. It complicates both intra- and extra-uterine pregnancies and can co-exist with other disease processes to which it may be primary, secondary or coincidental.

5. Gestation exerts no untoward influence

upon the normal appendix. It can, and frequently does, aggravate existing, or determine new inflammatory disturbances in appendices deviating from the normal in form, length, mobility, location, etc., in appendices bound down by adhesions or the seat of inflammatory or other degenerative changes. Pregnancy does not relieve the dangers of appendicitis, but aggravates them.

6. Appendicitis and uni or bilateral tubal pregnancy are frequently mistaken for each other. They may occur simultaneously or consecutively, may be either primary or secondary to, or independent of each other.

7. In appendicitis, in ectopic pregnancy and in combined appendicitis and ectopic pregnancy, of obscure symptomatology, it matters not whether you are certain or in doubt as to the real diagnosis, early and timely operative treatment is imperatively indicated.

8. During gestation, every type of appendicitis may occur: adhesive, catarrhal, gangrenous, ulcerative, obliterative, perforative and suppurative.

9. Appendicitis with adhesion formation is of great significance because adhesions of inflammatory origin can (a) incarcerate the pregnant uterus in the pelvis and mechanically hinder the enlargement of the uterus, (b) impair the contractibility of the uterus, (c) interfere with uterine labor contractions, (d) entail subinvolution, (e) induce sterility, (f) disturb tubal and ovarian integrity of function and of structure, (g) determine ileus, (h) produce abortion, and (i) lead to extra-uterine pregnancy.

10. Chief among the coexisting pathological conditions noted in appendicitis are simultaneous or consecutive inflammation of the uterus, tubes or other pelvic organs. The close anatomical relations existing between the appendix and the pelvic organs explain their frequent association in disease processes.

11. Appendicitis has a greater morbidity and a higher mortality in the pregnant than in the non-pregnant, operated on or not. It may terminate pregnancy.

12. The symptomatology of appendicitis in the pregnant is the same as in the non-pregnant. The clinical picture, however, is blurred by the coexisting symptoms of pregnancy. Diagnostic mistakes may be lessened by keeping in mind that appendicitis occurs in pregnant women; that a history of previous attacks during the same or previous pregnancies can frequently be elicited by careful questioning, by thorough and deliberate physical examination. With care, one can in these cases almost always arrive at a correct diagnosis.

13. To establish with certainty the diagnosis of appendicitis during pregnancy, it is necessary to exclude the presence of myalgia due to stretching of abdominal muscles, to exclude typhoid fever, ruptured or non-ruptured tubal pregnancy, cholecystitis, salpingitis, ovaritis, adnexitis, ovarian cyst with or without a twisted pedicle, right-sided pyelitis and ureteritis, fecal impaction, hepatic and nephritic colic. At times, any of the forementioned conditions may so closely resemble appendicitis as to cause diagnostic errors and operative mistakes.

14. The morbidity and mortality of appendicitis complicating pregnancy and the puerperium are the morbidity and mortality of delay in applying efficient surgical treatment. The initial symptoms of the attack do not enable the clinician to foretell accurately how a given case will terminate. What is going to happen in ten, twenty or forty hours following the onset of appendicitis cannot be foreseen. When the condition is diagnosed and remedied early, the mortality is practically nil. Abscess formation may be forestalled by early diagnosis and early operation. The high mortality is due to late diagnosis and late operation. The pregnant woman whose metabolism is good is a good subject for operative measures.

15. Prognosis is better for the mother if there be no interruption of pregnancy spontaneous and otherwise. The bad attacks cause abortions and abortion aggravates the illness. In the great majority of surgically treated there is no interruption of pregnancy and when it does occur it is not due directly to the operation. The interruption of pregnancy is not indicated. It aggravates the prognosis. The fetal prognosis is good in early operated cases.

16. The following prophylactic measures are sound and safe and are recommended for general adoption: (a) During the child-bearing age, recurrent attacks of pelvic pain, dysmenorrhea, menstrual and other pelvic disturbances unassociated with objective pelvic findings are not infrequently due to unrecognized appendicitis or sequelæ thereof. In the presence of this etiological factor, the ablation of the appendix is indi-

cated. (b) In laparotomies for conditions other than appendicitis, the appendix should be examined. Should it present any deviation from the normal, its removal is indicated. (c) During the child-bearing age, any woman who has had one or more attacks of appendicitis treated non-operatively should have her appendix removed so as to correct existing pathological conditions and prevent future attacks of appendicitis and complications incident thereto. True prophylaxis in a woman of child-bearing age who has had one or more well marked attacks of appendicitis is an interval operation. It goes without saying that constipation is to be avoided and that other hygienic precautions are to be observed.

17. A definite and accurate diagnosis of acute, chronic or recurrent appendicitis, irrespective of the stage of pregnancy, invariably calls for operation. The disease during pregnancy runs such a rapid, destructive course that delay is hazardous. Operation should be early and immediate. A case may be rendered hopeless by hesitation and inaction. Temporizing methods are extremely dangerous.

18. Treat appendicitis in the pregnant female as you treat it in the non-pregnant. Every pregnant woman who is a subject of appendicitis should be operated on just as soon as the diagnosis is made, whether the attack is the first, second or third.

The unusual risks of leaving a diseased appendix in the abdominal cavity are much increased by the pregnant state and the evil consequences of another attack, i. e., gangrene or perforation will be correspondingly greater. The danger of recurrence in the later months of pregnancy and in the child-bed period calls for operation preferably during the attack. If the patient is not seen in time, one will do the next best thing, an interval operation during the pregnancy. Pregnancy is an additional indication for operation in cases of appendicitis.

19. In inflammatory disease of the appendix, the ideal operation is appendectomy. In some cases, however, one has to be content with incision, evacuation and drainage of an appendiceal abscess. Exceptionally drainage of abscesses in Douglas' pouch may be affected through the vagina or rectum. Pus should be evacuated irrespective of uterine contents, and irrespective of its location.

20. It is well to keep in mind that for an appendectomy the median incision is contraindicated in the later months of pregnancy, that it is best to avoid or to reduce to a minimum the manipulations of the uterus; opiates are indicated in the after treatment. Labor when it occurs shortly after a laparotomy is not to be unduly prolonged; it may have to be assisted.

25 E. Washington Street.

(Dr. Heineck's reprints will contain an elaborate bibliography.)

A NEW PROCEDURE IN THE DIAGNOSIS AND DETERMINATION OF CURE OF GONORRHEA.*

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The diagnosis of gonorrhea offhand appears peremptory, and any new suggestions seem superfluous. We are satisfied with the belief that the causative organism is biscuit shaped, gram negative, intracellular. Doubt, however, exists as to a definite time for the obsequies on the gonococcus, and it is often with great uncertainty and temerity that a patient is unshackled from all restraint in the manner of living, particularly when that patient is married.

Briefly, there are but few difficulties presented in the diagnosis of gonorrhea in the male. The ordinary pyogenic organisms to be differentiated by smear examinations in urethritis are, staphylococcus (which in urethral inflammations is known to be pleomorphic, having often all the morphologic characteristics of the gonococcus), the streptococcus, micrococcus catarrhalis, short colon bacillus. These difficulties loom prominent in old cases, wherein the original invading gonococcus may be difficult of recognition in the presence of secondary invaders.

In the female case the physician is usually in a quandary as to diagnosis. An acute early case, where the diagnosis is at times readily made, is not usual. In the average cases the patient is not cognizant of anything seriously abnormal, or she is hopeful that the "whites" will soon let up, regardless of its cause. A definite diagnosis by smear examination in this type of case is futile.

Were the identification of the gonococcus by culture simple and certain, this would unques-

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tionably be the method of choice. A "no gonococcus growth," unfortunately, does not signify an absence of such an infection.

The complement fixation test of today is excellent in its limited field. In the complications in the male, such as epididymitis, prostatitis, seminal vesiculitis, a diagnosis can be made without the test. It is of value in arthritis. In the female, where the greatest difficulty exists, it may or may not help. A negative test does not preclude the possibility of the presence of the gonococcus. In old cases of cervicitis, metritis and salpingitis it would be positive. In either sex, as complications are not the rule, the value of the present test is curtailed.

For the early diagnosis of early gonorrhea, when the biological test is of no avail in male or female, we must, after all, seek out the gonococcus. Recognition of this organism *per se* being attended with serious difficulties at times, there still remain typical generic reactions dependent on the organism and its autolytic products in the principle of the complement fixation test. Whereas, in the present antigen-amboceptor-complement reaction we seek the amboceptor in the blood of the patient, a unit to be found only in complications wherein the human body attempts a defense against the gonococcus or its toxins, in the author's test to be described, we seek the antigen present at all times in this disease, because it constitutes the ever present gonococcus itself, or its metabolic products.

The first experiments were directed to determine the proper, most constant and effective sources of antibody (amboceptor), and its standardization. Herein lay only two choices, the blood serum of a patient that yielded a strongly positive complement fixation test for gonorrhea, and the commercially prepared antigonococcic serum. The experiments consisted of the performance of the typical complement fixation test, employing increasing quantities of dilutions of both the human and antigonococcic horse serum with normal salt solution as the diluent. Omitting details of the well-known reaction, it was found that with the human serum, four drops from a 1.5 mm. bore glass dropper of a 1-2 dilution, and with this particular antigonococcic serum (P. D. & Co. 026960) 1 drop of 1-27 dilution gave the best reactions. This standardization can, of course, be made with the volumetric system, if one employs that system in the performance of the complement fixation test.

In view of the fact that gonorrheal antibody was found to be present in good strength in the commercial horse serum, preference is given this artificial antibody, because the source is more dependable and constant, it reacts in higher dilutions and smaller quantities, and it can be kept almost indefinitely without spoiling—although as a rule a somewhat more delicate reaction was obtained with good human serum.

The second series of experiments was conducted to determine the method of preparation of the material suspected of containing the gonococcus (antigen), such as, urethral, vaginal, cervical, prostatic, seminal vesicular discharges. In the first experiments this antigen was, of course, supplied by the commercially prepared gonococcic antigen.

To begin with, known cases of gonorrhea were selected. As controls, five normal urines, three cases of colon and one of typhoid bacilluria, two of non-specific urethritis and five cases of ordinary leucorrhea in women were tested—all exhibiting negative reactions.

The following is a detailed account of the best methods evolved for preparing the specimens from the various possible sources:

Urine.

The patient who has refrained from urinating for several hours (preferably over night) prior to inspection, is asked to empty his urine into a glass. The urine is permitted to stand until the pus or sediment settles. The top urine is then decanted off, and the remainder well-shaken is centrifuged for a few moments, throwing the organisms down together with the pus. The supernatant fluid is discarded, and upon the residue is poured normal salt solution. The amount of salt solution used depends upon the amount of residue, viz.: with a heavy residue use a larger amount of salt. Grind this mixture in a glass mortar for a few moments. Permit this to stand at room temperature or in an ice chest, it matters little, for several hours, preferably over night, then heat to 56 degrees Centigrade for half an hour. If the suspension is thick, centrifuge for a few *seconds*, so as to obtain a faintly turbid supernatant fluid. If the sediment in the original specimen of urine is scant, indicating little pus, and when the sus-

No.	Patient	Nature of Case	Duration of Disease	Treatment	Source of Specimen	Heated at 56 deg. Cent. ½ hour	Anti-gonococcic Serum	Human Serum	No. of Drops of Suspension												REMARKS
									1st Test				2nd Test				3rd Test				
									2	4	6	8	2	4	6	8	2	4	6	8	
1	S. B.	Ant. Ureth	10 hours	None	Urine Sediment	Yes	Yes		0	††	††††										
2	W. C. W.	Acute Ant. and Post. Urethritis	12 days	None	A. Swab	Yes	Yes		0	††	††										
					B. Urine Sed.	Yes	Yes		0	††	†††		††	††††	††††						1st Test spec. B contained sediment, 2nd Test with supernatant fluid only, which gave a stronger reaction.
3	L. L.	Chronic Endocerv. and Endometritis	2 years	Douche tampon	Cervical vaginal smears immersed in N/NaCl	A. Yes		Yes	††	A*	A*										
						B. Yes		Yes					†	††	†††						Long continued treatment had no influence on the case. Smears were negative for gonococcus at times.
						C. Yes	Yes										0	†††	†††		
4	B. L. H.	Chr. Ant. Ureth. Paraureth fistula	1 month	Usual	A. Ur. Sed.	No		Yes	††	†††	††††										
					A′— x	No	Yes														
					y			Yes					0	††	††						In the second test, with specimen A′, a stronger reaction was obtained when employing commercial antibody than with human.
					B. Swab from fistula	No		Yes					-†	††	†††						
					B′— x	No		Yes	0	††	†††		††	†††	††††						
					y		Yes		0	†	††										
5	J. M. D.	Chr. Ant. Ureth.	2 months	Usual	A. Pus in urine as solvent	No		Yes	0	†††	A*		0	††	A*						In specimen A the urine as a diluent interfered with the reaction, and this form of diluent was thereafter discarded. The antigonococcic serum in this case gave a better reaction.
					B. Pus in N/NaCl	No		Yes	††	A*	A*		0	-†	††						
					C. Same as in B.	Yes	Yes		0	†††	†††										
6	H. V.	Chr. Ant. Ureth. and Prostatitis	6 months	Usual	A. Ur. Sed.	No		Yes	0	††	††††	††††									
					A.′	No	Yes		0	0	0	0									The effect on the test by heating the specimens is observed in A′ and A″. All three suspensions were prepreared from the same specimen.
					A.″	Yes	Yes		†	††	†††	†††									
7	R. Q.	Chr. Ureth. Totalis	3 months	Usual	A. Urine Sed.	Yes		Yes	††	††	-†††	††††	0	0	0						At time of 2nd test, one month after 1st, urine was clear; pus present in prostate. In 3rd test two months later, pus disappeared from prostate and patient was cured.
					B. Prost. Secret.	Yes		Yes					†	††	†††		0	0	0	0	
8	W. H. B.	Ureth. Tot. Metastases in Iris and Joints	5 months	Usual and Horse Serum	A. Ur. Sed.	Yes		Yes	-†††	†††	††††	††††									Clinical appearance at "A" test, 1st glass urine cloudy 2nd clear, purulent discharge from urethra and prostate. "B" test two months later; clinically cured. Complement fixation test negative.
					B. Prost. Secret.	Yes		Yes	0	0	0	0									
9	A. L. S.	Clinically cured Ureth. Tot.	3 months	Usual	Prostat. Secret.	Yes		Yes	0	0	0	0									
10	S. W.	Chr. Pros. Had Epidid.	9 months	Indifferent	A. Ur. Sed.	Yes		Yes	0	0	0	0									
					B. Prost. Secret.	Yes		Yes	††	††	†††	††††									Indicative of the localising possibilities of the test in Littre glands and prostatic infections. These tests were done at various intervals.
					C. Ur. Sed. after penile mass on sound	Yes		Yes	††	†††	††††										
11	L. H.	Prostatitis	1 month	Massage	Prostate	No		Yes	0	††	†††	††††	0	0	0						A negative obtained in six weeks after massage.
12	H. H.	Ant. Ureth.	6 weeks	Usual	A. Ur. Sed. x	Yes		Yes	0	0	††	†††									
					y		Yes		0	0	†	††	0	0	0	0					The second test was done three days after the first, showing the exact time of cure.
					B. Swab	Yes	Yes		0	†	††										

13 M. G.	For Diagnosis	?	None	Cervical Secr.	Yes	Yes		0	††	†††										Clinically clean, but infected a man. Four smears negative; fifth positive for gonococcus. A misleading case without the test.
14 E. C. H.	Chr. Pros.	6 months	Mass.	A. Ur. Sed.	No	Yes		0	0	0	0									No urethral discharge present for four months. Pus persistent in prostate and vesicles despite massage.
				b. Prost.	No	Yes		††	††	†††	††††									
				B′. Prost.	Yes	Yes			†	††††	††††									
15 J. P.	Chr. Endocervicit	?	None	Cervix Vagina	Yes	Yes		0	††	††		0	†††	†††						Smear diagnosis impossible because of vast flora of organisms.
16 N. W.	Ureth. Tot. Prost.	1 month	Usual mass.	A. Ur. Sed.	No		Yes	0	0	0	0									At the time of performance of the 1st test specimens A and B, no urethral discharge for two weeks, despite fact that patient drank.
				B. Prost.	No	Yes		†††	††††	††††		†	††	†††						
				B′. Prost.	Yes	Yes										††	†††	†††	††††	
17 J. R. M.	Ureth. Totalis	3 months	Usual	A. Ur. Sed. x	No		Yes		Irregular											The irregularity in this case is unaccountable.
				y		Yes		†	†††	††††										
				B. Swab	No		Yes	†	†	†										
				C. Prost.	No		Yes	†	†††	A*										
18 E. C.	Ureth. Tot. Arthritis	3 weeks	Usual Horse Serum	A. Ur. Sed.	Yes		Yes	††	††††	††††										The second test was done after horse serum injections which cleared the urine, but left a slight mucopurulent discharge from urethra. The effect of the serum is reflected in the amount of suspension required for a positive.
				B. Ur. Sed.	Yes	Yes						0	0	0	††††					
19 M. V.	Endocervicitis	6 months ?	Local	Cervix and Vagina	Yes	Yes		0	0	†††		0	0	0	0	0	0	0	0	A cure in a female. Last negative two weeks after first. Doederlein bacilli were present at last examination.
20 A. M.	Ureth. Tot.	10 weeks	Usual	Ur. Sed. A.	No	Yes		0	0	0	0									Shows desirability of heating specimen. "A" unheated, "A‴" heated portions of same specimen.
				A′.	Yes	Yes		0	††	†††										
21 W. A. D.	Ureth. Tot.	3 months	Usual	Ur. Sed. A.	Yes		Yes	0	††	†††										It is interesting to note that the prostate had cleared completely before the urethritis. Two weeks elapsed between test 2 and 3.
				A′.	Yes	Yes						0	††††	††††		0	0	0	0	
				B. Prost.	Yes	Yes						0	0	0						
22 A. H.	Ureth. Tot.	10 weeks	Usual	Ur. Sed. A.	Yes	Yes		†	†	††										Test 2 illustrates the irregular reaction of a too heavy suspension. Test 3 represents the supernatant fluid of the same specimen centrifugalised for a few seconds.
				B.	Yes	Yes						†††	0	†		†	††	†††		
23 E. W. B.	Acute Ant. Ureth.	1 month	Usual	Ur. Sed.	Yes	Yes		††	†††	††††		†††	†††	††††		0	0	0	0	Specimen for test 2 collected with patient apparently well; result anticipated relapse 36 hours later. Negative obtained in two weeks.
24 A. R.	Chr. Prost.	2 months	Usual	Prost.	Yes	Yes		†††	†††	A*										Patient complained of intermittent urethral discharge, whose source was from prostate.

A* Anticomplementary, i. e., the control in the second row corresponding to this amount of the suspension, inhibits hemolysis.
0 Indicates a negative reaction (hemolysis).
† The number of † signs indicates the degree of positiveness (inhibition of hemolysis), as used in interpreting the Wassermann test.

pension is but slightly turbid use the mixture as such after heating, omitting the second centrifugation. As the proper preparation of this suspension is the most essential of all details in the performance of the test, it is necessary through practice to become familiar with the appearance of a correct specimen suspension.

Urethral Discharge. Having instructed the patient not to urinate for several hours, stroke the penis forward beginning at the bulb, and collect the expressed discharge as it appears at the meatus, either on a cotton swab, or, if abundant, let it drip into a small test tube containing 2 cc. normal salt solution. If collected on the swab, which may even be permitted to dry, immerse the swab in a tube containing normal salt solution, stirring vigorously, and let it soak thus over night, when it is ground in a mortar. If the pus is collected directly in the salt solution, this is ground immediately and permitted to stand over night. The specimens collected in either fashion are heated then at 56 degrees for half an hour, and are then ready for use.

As a rule, the suspensions in these cases are ready for use after the preparation thus described. Should the suspension be too turbid or contain floaters, thus spoiling its homogeneity, as often happens when collected by swab, centrifugalize for just a few seconds prior to using, so as to throw these floaters down.

Prostatic and Seminal Vesicle Secretion. With the patient retaining urine in his bladder, the prostate and vesicles are massaged, and the secretion, if abundant, is collected in a tube and diluted with normal salt solution, and treated thenceforth as is the urethral discharge so collected. If scant after massage, the patient is requested to urinate after the massage into a glass. The specimen thus obtained is then treated as described in the case of urine.

Vaginal and Cervical Discharges. Through a speculum the vaginal or cervical discharges, preferably both, are collected on long applicators and treated exactly as is the urethral discharge.

The principle of the treatment of the specimens, as described, is evolved from the fact that the organisms are thrown down into the sediment by centrifugalizing, thus concentrating them or their products. It is a recognized fact that the gonococcus is readily autolyzed, even in its media of growth, and the salt solution added to the sediment acts as an additional autolyzing agent and solvent. The process of autolyzation is enhanced by grinding in a mortar.

The effect of heating the specimen is not certain, except as will be observed from the case reports, unheated specimens known to contain the gonococcus and yielding at times negative reactions, properly became positive after heating. Perhaps heating aids dissolution of the gonococcus. It was likewise observed that a specimen kept over night yielded a more definite, clean-cut reaction than one prepared the same day of the test, probably because autolysis and solution of the autolytic products were more complete. In fact, positive reactions were correctly obtained in specimens twenty-four hours old, that yielded negative when fresh.

A further very important observation in the preparation of the material was the fact that specimens, too thick, or containing sediment not sufficiently dilute, gave very irregular reactions in the same test, making an interpretation impossible. The proper dilution is important, but there can be no fixed rule. The dilution theoretically depends upon the number of gonococci present in the specimen, but a count is not practical. The best rule to follow is to make the specimen more dilute when in doubt, for increasing amounts of the suspension are used in the test, and the same effect is obtained as with a concentrated specimen without the deleterious encumbrances.

Technic of Test. In the performance of the test hot water bath incubation has been employed in preference to the incubator, and in this fashion the time required has been cut in half.

Arrange for each specimen to be tested, ten tubes (of the kind used in the Wassermann test) in a rack, as follows: four in the first row, four in the second, one in the third, and one in the fourth. To each tube add 2 cc. normal salt solution. To each tube in the first row and the only tube in the third add one drop of a 1-29 dilution (this dilution depending upon the previous titration) of antigonococcic serum (one part antigonococcic serum and 28 parts normal salt solution). Now add the specimen to be tested and prepared as previously described as follows: In the first tubes of the first and second rows add two drops of the prepared specimen; in the second tubes of the first two rows

four drops; in the third tubes six drops; in the fourth tubes eight drops. In the only tube of the fourth row also add eight drops of the specimen. Now add complement in proper amount according to standardization, as in the Wassermann test, to all tubes except the one in the fourth row. Incubate in the water bath at 37.6 degrees Centigrade for one-half hour. At the end of this period add amboceptor and corpuscles as in the Wassermann test. Return to hot water bath for continued incubation, and prepare for readings.

Explanation. The first row contains all the ingredients and constitutes the test. The second row controls the first—to determine the effect of the specimen itself without the gonococcic amboceptor on the hemolytic system. The third row tube is a control on the gonococcic amboceptor; whereas, the fourth row tube determines whether the specimen in the largest amount used is in itself hemolytic to the corpuscles.

Readings. As in the Wassermann test, an inhibition of hemolysis indicates a positive reaction; the more complete the inhibition, the stronger the degree of positiveness. It is advisable that the readings be taken as soon and as often as possible, for hemolysis may proceed to a certain extent in the most positive case if permitted to stand too long. A final interpretation can usually be definitely made within fifteen minutes with the water bath method of incubation.

Some specimens are anticomplementary, that is, inhibit hemolysis in themselves even in small amounts. A reading is possible, however, so long as the first control in the second row hemolyzes. It is best in such a case to dilute the specimen and repeat the test without additional heating to 56 degrees.

Commentary. Keeping in mind the principle of this test as described, it should be possible to diagnose gonorrhea at its very inception. And so it is. This is applicable to all cases, male or female, regardless of the source of the specimen.

It is further possible, as will be seen from the case reports, to frequently locate the site or source of the gonococcus, as in exacerbations, and chronic cases resistant to treatment. For example, in the absence of a urethral discharge during a remission, a specimen to be tested is obtained from the urine voided into a glass. Additional urine is kept in reserve in the bladder. Then the prostate and vesicles are massaged, and the residual urine expelled. Specimens prepared separately from these two portions of urine are tested. Should the first portion be negative and the second positive, the infection can then readily be traced to the prostate and vesicles. Should both specimens be negative, at another examination, after voiding some urine which should be discarded, a bougie or sound is passed, the penis massaged with the instrument in situ, and then the residual urine is expelled and preserved for preparation. In so doing secretions from the crypts along the urethra, such as Littre glands, and organisms forced out with the desquamated superficial lining of the urethra are expressed and collected in the stream of urine voided. Thus a glandular urethritis is determined.

If a positive test of this kind indicates the presence of the gonococcus, then a negative test should be indicative of the disappearance of this organism in a case under treatment, since this is a true complement-fixation test. Whether a single negative reaction is reliable evidence of a cure, I am unwilling to state. In my experience, as yet limited, it has proven true with the technic of the test as described and with the proper preparation of the specimens as outlined. However, before pronouncing a cure, the test should be applied to material from all possible sources in the patient, and repeated if necessary.

CONCLUSION.

In conclusion, it appears from the cases thus described, employing the principles of complement-fixation, that we have a test that determines the presence of the gonococcus in any manner of discharge from any accessible location and at the very inception of the disease. It has been a harbinger of an exacerbation, even before any subjective or objective signs or symptoms indicate it. Specimens for the test are easily collected and prepared without any discomfort to the patient. It is possible to locate the focus of infection, serving thus as a guide to the proper treatment. It has been especially valuable in the diagnosis of gonorrhea in the female. Finally, it is a reasonably certain aid in the determination of a cure.

25 E. Washington St.

DISCUSSION OF CLINICAL LABORATORY, X-RAY AND AUTOPSY FINDINGS IN AN OBSCURE INTESTINAL DISORDER.*

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I could not come before you with any gems of scientific discovery gleaned from an extensive series of cases for I have had no extensive series. I have had only the mixed assortment of disorders that come to the man in general practice. Occasionally, however, I work on an especially puzzling and instructive patient, and it is concerning the last few weeks of one of these that I shall speak today. My idea is to point out a few mistakes and make a partial statement of how they might have been avoided.

The patient was a man aged 46 years, married and the father of several healthy children. Eighteen years before coming to me he had had a severe typhoid with cerebral complications. Fourteen years before he had an attack of severe pain in the abdomen that lasted a month. Ten years before, rheumatism in the left hip had laid him up for three months. An anal fistula bothered him nine years before but was cured. His last disability was of thirteen months' duration when he first came to me, and caused his death six months later. While unloading freight he had fallen about four feet, bruising his right lower ribs on the edge of a platform and with a heavy package on top of him. He was in bed for seventeen days, and from that time on was entirely unable to work, having trouble both with his right side and with his right shoulder, which also was injured by his fall. During the earlier weeks, his shoulder caused the more trouble and overshadowed the condition of his side. His abdomen in the liver region, gave him some discomfort right along, but his first real suffering began about three months after the accident. He had acute abdominal distress and passed a little blood per rectum. A month later he ate a boiled dinner and was in distress for three days. He then passed a quantity of bloody pus and felt at once relieved. As he suffered comparatively little he did not remember details as accurately as he did of later and more severe attacks, the first of which followed in about two months. This time his distress was located definitely in the right upper quadrant, lasted eight days and slowly subsided. It was called appendicitis. Three days later he was again acutely ill and went to the hospital for operation, the diagnosis being appendicitis, or perhaps ileus, because of some general abdominal symptoms. I was asked to administer the anesthetic. When just about asleep, the anesthetic being ether, he went into collapse, and I had to send him from the table before the operation was even started, which, by the way, is the only circumstance of that kind that I have encountered in almost a thousand anesthesias. The following day he passed a large slimy bloody mass and recovered partially. After two weeks of moderate illness he experienced an exacerbation, passed about a teacupful of pus and blood and promptly felt better.

For the last two months before coming to me he had had repeated attacks, becoming more and more frequent. All the attacks were similar. After several days of comparative comfort he would begin to have increasing distress with a feeling of fullness in the right upper quadrant of the abdomen, then several hours of severe pain and cramps followed by the passage of pus and some blood, then prompt relief. He was cold all the while, but had no definite chills. He sweat much about the mouth, occasionally all over. He was getting weaker but had not lost much in weight. Two hours after eating he would have some pain and a full feeling. The essential points in the history when the man came to me were:

Severe injury in the region of the liver followed by complete disability, and a few weeks later by intermittent attacks of right upper quadrant, pain and distress, with a feeling of fullness and followed by cramps, and immediately relieved by the passage of bloody pus. Moreover he looked like a sick man.

Examination revealed an exceedingly foul breath, but only three carious teeth and a fairly healthy nose and throat. The chest was clear excepting a "soft" heart. The abdomen showed only great tenderness in the right upper quadrant and along the transverse colon. The right lower quadrant was not tender and no palpable abnormalities whatever were found. The urine showed quantities of calcium oxalate crystals and a very few leucocytes, epithelial cells, and gran-

*Read before the Tri-State District Medical Society at Freeport, Sept. 27, 1916.

ular casts. Hemoglobin, Talquist scale, was 85 per cent. W. B. C. numbered 13,320, of which 81 per cent. were polymorphonuclears.

Immediately after this examination I observed one of his bad spells and found it just as he described previous attacks. During the height of the attack there was considerable rigidity and great tenderness, and an exceedingly tender indefinite mass below the liver. At least I thought there was. Temperature ranged from 99 to 100; pulse about 100. After six days he passed pus and some blood and was relieved. I could not account for the low pulse and temperature but made a diagnosis of post-traumatic abscess intermittently discharging into the intestine; and hedged with a suggestion of malignancy. As he was a poor risk I urged him to go to Chicago for operation. Just before going he passed a feathery mass about the size of a cherry. Under the microscope I thought I made out masses of epithelium. It should have been sectioned and stained, but as he was about to go to one of the largest and best of the Chicago hospitals I spared them this expense. I offered it to the hospital but they did not want it.

At the end of a week he was transferred from the surgical to the medical service and after another month sent home "cured." I examined the hospital records some time later and found the following:

R. B. C., 3,570,000.

Hb., 56 per cent—note the rapid drop from the 85 per cent that I had found about two weeks previously.

W. B. C., 15,400, of which 84 per cent were polymorphonuclears.

Urine, normal.

Feces, normal; no pus or blood.

X-ray, taken and interpreted by a man of unquestioned ability, showed adhesions about the colon at the pelvic brim, "as of an old colitis."

Colon, spastic.

No organic defects whatever were found.

A tender spot was found medial to the cecum and below the transverse colon. (They agreed with me in one particular anyway.)

Heart, normal.

Treatment, in the hospital, consisted of icthyol enemas, oil of paraffine, coarse diet and fats.

Through three different channels I got the diagnoses, "static colitis," "spastic colitis" and "mucous colitis."

On the patient's return home he took to his bed and failed rapidly. He no longer passed evident blood but often passed pus. Considerably jarred by the hospital report, disagreeing with the diagnosis and disapproving of the treatment, and being unable to secure consent to operation I retired from the case. I kept it steadfastly in mind at this time that he looked like a very sick man. Four weeks later I was recalled, found an easy diagnosis and a moribund patient. Cachexia was marked, prostration complete, and a bloody and purulent diarrhea distressing. Cramping pains were almost continuous. Attendants said that his food passed from him within an hour and almost as eaten. This, of course, I took to be an exaggeration. A week later he was vomiting blood. Pain extended over to the left upper quadrant for the first time. Ten weeks after leaving the hospital he died. Probably as the condition increased and emaciation progressed I might have found something by careful abdominal palpation, but as he was beyond help, I did not care to add to his distress. My treatment after being recalled to the case was mostly morphin.

Autopsy showed:

Heart was small, pale, thin, soft and friable, explaining the experience with the anesthetic. In Chicago the heart was found normal.

There was a healed plastic appendicitis which probably explained the month of abdominal pain fourteen years before.

In the right upper quadrant of the abdomen, the site of all the pain and tenderness, was absolutely nothing abnormal excepting an extremely thin distended colon, which distension explained the pain and full feeling, at least that occurring late.

Practically all the pathology was in the region of the splenic flexure of the colon. Here the colon was loosely adherent to the diaphragm and spleen. A dense carcinomatous mass involved about eight inches of the length of the colon and about half its circumference, principally on the posterior and superior walls. A few mesenteric glands were enlarged. The tail of the pancreas was involved by direct continuity, as was the greater curvature of the stomach, through which a perforation admitting three fingers connected the stomach directly with the descending colon.

My problem is, "Where could I have done better in the management of this case and could the man have been helped?" His ability to stand a resection was very doubtful, but the limited metastases suggests that early excision might have cured. Anastomosis certainly would have saved him weeks of agony. This history suggests that the x-ray cannot be relied upon too implicitly and should not entirely negative clinical findings. The spastic appearance of the

colon was probably the carcinomatous narrowing of the lumen. It suggests further that a man who has studied a patient carefully should not too readily accept the radically differing diagnosis of the busy specialists. The drop in hemoglobin from 85 per cent to 56 per cent could not have been entirely error in estimation, but was probably due to continued hemorrhage, which should have been discovered. The laboratory report of normal feces I am utterly unable to explain. The tenderness in the right upper quadrant, found both by me and in Chicago, I cannot explain. This man's symptoms developed a little too late for post-traumatic abscess and yet, I believe, not late enough for that to be impossible. The leucocyte count, pulse and temperature were all a little low for pus, but I have repeatedly observed them fully as low or lower in chronic hidden abscesses. Perhaps the most significant point overlooked was the history of the passing of blood first of all. Above all, this experience has proven only another instance that has impressed on me the advisability of a long comprehensive inspection of your patient and estimation of what he looks like as advised by our old teacher Senn, and as exemplified in several of the older generation with whom I have been associated.

THE SURGICAL CARE OF TRACHOMA AND ITS SEQUELAE.*

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Some time ago I operated on an old trachoma case for entropion of both upper lids. The lids were perfectly bald. Some six months later the patient's daughter, who is almost 30 years of age, remarked to me that it seemed so odd to see her mother with eye-lashes—that she had never seen her with lashes before. This led me to think how long-suffering some of these cases have been. Think of pulling out eye-lashes every day for more than 30 years!

The simplicity of the operation for entropion due to trachoma is so easily mastered that it seems in 30 years she would have fallen into the hands of some one who would have given her relief.

*Read before the Southern Illinois Medical Society, Nov. 2, 1916.

The entropion operation I am doing and on which I reported in a paper before the Illinois Medical Society last May is simpler than the published accounts of other operations and differs from the others in that it does not cut the tarsal plate nor a groove in it in correcting the deformity. My operation requires a dissection of the lower edge of the tarsal plate from the edge of the lid, and also a portion of the conjunctival surface. This gives a new relation of the plate to the lid and therefore does not admit of so much shrinkage, and the consequent relapse of the entropion condition. In all other particulars it is the same method as that used by other operators.

The Removal of the Granulations. The removal of the granulations is accomplished by means of the olive-shaped trachoma rasp followed by Knapp's roller forceps with just enough pressure to express the trachoma follicles, this in turn to be followed with grattage of the lid by means of the finger wrapped with gauze dipped in a 1:1000 bichloride of mercury solution. Powdered boric acid is then massaged into the lids and hot applications used on the eye for two hours, and the daily use of White's ointment until the patient is well. This routine operation is so simple and easy of performance and causes so little trauma that it can be repeated if necessary. The criticism offered to the roller forceps is properly directed to its misuse, but its proper use is of material advantage in the treatment of trachoma in the extrusive stage. Trachoma in the cicatricial stage does not need the use of expression methods and therefore nothing but harm can come from rasp or forceps in this stage.

Distichiasis. Multiple rows of lashes usually require the use of the galvano-cautery. This procedure can be taken in easy stages, and a few lashes removed at each sitting till all are removed that are offending.

Ulceration of the Cornea. Ulceration of the cornea may be due to the presence of granulations or to lashes that produce abrasions of the cornea. The treatment of the ulceration requires not only the removal of the cause but also very careful treatment to prevent spread of the ulcer and the formation of scar tissue. This latter cannot be wholly prevented for ulceration is

in its nature scar forming. But the instant use of measures for the removal of the cause are to be instituted and the ulceration is to be treated surgically by the subconjunctival injection of cyanide of mercury and medically by the local application of iodine.

Lids, lashes and ulcer require daily attention till all danger is past.

Shrinkage of the Conjunctiva. When the conjunctiva is shrunken to the extent that the transitional folds are absorbed motion of the eye is impeded, and as the shrinkage continues the motion of the eye ball becomes more and more limited till practically fixation takes place and the patient feels great inconvenience from the tugging sensation on attempting motion.

The treatment of this distressing complication is begun by the local use of dionin in the form of an ointment, first using 5 per cent, and when this strength fails to produce sufficient reaction increase the strength to 10 per cent, which in my hands has sufficiently relaxed the conjunctival sacs to give great relief, but where there is failure of the lids to cover the cornea when the eye is closed the conjunctival sac should be loosened at the transitional folds and the lid drawn forward with either sutures or adhesive strips till the new relationship has been established, when the other lid may be treated in the same way, thus giving the lids freedom from the effect of the shrunken sacs. This treatment is the one used in cases where the lids do not cover the cornea, and the cornea becomes dry and exfoliates. I have some cases now under observation, but it is too early to report more than to say they are improving and the patients seem very much encouraged.

Pannus. There is ground for thinking that pannus is a protective measure of the eye ball for the purpose of preventing the granulations from denuding the cornea and producing ulceration, but that this purpose, if such it is, fails in many instances is experienced by all observers, and while pannus serves to offer some measure of protection to the cornea possibly, it reduces the vision gradually or rapidly to perception of light. I have found that the removal of the granulations and the use of dionin in 5 per cent. and later in 10 per cent ointment is the surest routine treatment for this condition.

HEMORRHOIDAL CONSIDERATION WITH REFERENCE TO MODERN IDEAS,*

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Generally hemorrhoids are considered a minor disease, not that they do not produce suffering, but that they are a local disease and have little effect on health; that it is not necessary that they should be relieved. It is also considered that rough or careless operative procedures can be withstood in this region better than in other parts and that the repair of mutilating methods is very favorably taken care of by nature. This only adds to the chances taken by careless physicians who have not the training nor the skill to treat the hemorrhoidal condition. I say this because I consider hemorrhoids a manifestation of a condition in the lower bowel that exists very commonly which is the beginning of many systemic conditions that are the result of toxic absorption and evidenced by the appearance of hemorrhoids. Many are the causes given in the literature for hemorrhoids. In fact they are so many that they have led to a confusion as to the etiology.

We should consider hemorrhoids a very grave condition and educate the laity to the importance of having them corrected and not allow them to continue to exist, so that they will produce toxic effects which lead to kidney and heart lesions and rheumatic conditions. These toxic absorptions lead also to nerve lesions. You do not find any of these cases that have existed for any length of time that do not give evidence of nervousness. The treatment of hemorrhoids is largely a question of preventative medicine. Hemorrhoids do not merely mean the enlargement of a plexus of veins but an inflammatory condition of the lower part of the alimentary canal. This inflammatory condition exists before the hemorrhoids are formed, and is the causative factor in their production. This catarrhal condition of the mucous membrane overlying the hemorrhoidal plexus weakens it and the veins dilate. As they dilate they act as foreign bodies and become more irritated, causing greater inflammatory processes that result in new tissue

*Read before the Southern Illinois Medical Association, Nov. 2, 1916.

formation. As this process continues these enlargements tend to follow the general rule of all growths in this region by being dragged down and eventually prolapse, forming the hemorrhoidal condition that we usually find when these patients consult us. These patients do not suffer when there is little acute inflammatory condition present, and this is the reason that they are fooled by the use of advertised ointments that have a tendency to contract, and relieve the acute inflammatory process, but it is impossible to cure them by such means after the hemorrhoids have once formed.

Treatment. There is no question in my mind that the text-book methods we find today are obsolete. The success in curing hemorrhoids rests upon obtaining a smooth, clean, mucous surface of the anal canal. The reason that we have the recurrence of hemorrhoids and the poor results are due to the methods we use. I believe that it is impossible to obtain this smooth anal canal with any method that depends upon a slough. I cannot understand how, except by accident, that by the means of such a method we can remove the desired amount of tissue so that we have remaining this smooth surface that is so desirable. We are told that the injection method acts without a slough. This is questionable in my mind and the best that we can say of the injection method is that it is a makeshift method, and we find this proved from the fact that there is a greater percentage of recurrences following this method than any other. The Whitehead operation is seldom indicated and hemorrhoids should be treated long before they obtain that stage for which the Whitehead is indicated. I have long taught my students that the Whitehead method is only indicated when we find the removal of the hemorrhoids requires the removal of so much mucous membrane that we have not sufficient left in order that the anal canal can be covered by it. We cannot hope to obtain a fine result with this method and it results in stricture, as has been experienced by St. Mark's Hospital, to the extent of eight per cent.

The method to which I desire to call your attention is the open excision method. It consists of a longitudinal elliptical incision of the hemorrhoid, so that the mucous membrane will coapt. No suture is required because the contraction of the surrounding muscles will cause this incision, if properly made, to come together. The advantage of doing away with the suture prevents additional exposure to infection, which is always present in this region, for we are not able to make it aseptic. Where the excision extends into the skin surface it may be necessary to place a suture when there is much gapeing, but this should not be done unless it becomes absolutely necessary. No plug should be used for the escape of flatus. It is not necessary when your patient has been properly prepared, and it is one of the most torturing appliances that has ever been invented for surgical treatment.

The only criticism that has been made of this method is that of the danger of hemorrhage. You will find that all of the reported deaths in the literature from hemorrhoidal operations have been those due to secondary hemorrhage which occurs from the second to the eighth day after the operation, that is when the slough occurs. The question of hemorrhage with this operation is that of primary hemorrhage, and what surgeon is not able to control primary bleeding from vessels of the size of those found in the hemorrhoidal region? The successful control of hemorrhage is to realize the fact that when you have muscular contraction you will not have hemorrhage. That means that you should not over-stretch your sphincter muscles. The assistance of a tight T-bandage will support the anus and assist in this contraction. Before the patient leaves the operating table you should well satisfy yourself that by clean cut excision, compression, and sometimes the catching of the bleeding blood vessel by the artery forcep that you have done all that is necessary to prevent hemorrhage occurring after your patient has been put to bed. Clean cut wounds do not bleed as freely as the torn ones.

The preparation for the patient should not consist of the use of cathartics, but upon the use of repeated cold enemas until the bowel is thoroughly cleaned out. In the after treatment I move the bowels every day with an enema and direct the patient to use the sitz bath. This not only gets rid of the flatus but keeps the parts clean.

I trust that the profession will begin to realize the importance of curing this common class of disease, which is the beginning of many systemic processes that prove very serious to our

patients; that physicians who desire to use prophylactic methods in treatment will not overlook the importance of caring for and correcting these hemorrhoidal conditions.

PYELOTOMY VS. NEPHROTOMY.

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The removal of concretions of the kidney, one of the accomplishments of modern surgery, like most operations, went through various periods of evolution. In the first place in the earlier days, operations for this purpose were rather rare, because the diagnosis was based more or less on guesswork and a determination of the exact location of the stone or stones was next to impossible. It certainly was beyond the reach of any surgeon to even guess at the existence of one or more concretions. The rarity of such operations prevented the development of a proper technique. The search for the stones, after the kidney was once exposed, was not only difficult but often resultless, because surgical starting points were missing. In many instances it led to such a degree of injury of the kidney that eventually extirpation of the organ had to be decided on.

All this changed with the introduction of our modern methods of diagnosis, among which the x-ray plays an important role. Hardly any renal concretion will in these days escape the experienced Roentgenologist. We are now in a position, not only to exactly determine the number of concretions, but it has also become possible to get exact information as to the size and shape of the stones. A good x-ray picture will also furnish us with a fairly distinct outline of the kidney concerned. Additional information may also be obtained by the use of a lead catheter and the injection of such fluids as collargol.

Before this the splitting of the kidney parenchyma was the universal method for the removal of calculi, but after a while certain objectionable features of this method were recognized. In the first place this method was freighted with the essential danger of every nephrotomy, the post-operative hemorrhage, which either proved fatal or forced the surgeon into a secondary nephrectomy. Then practical and experimental investigations revealed the fact that this way of incising the kidney always led to a very undesirable destruction of excreting parenchyma.

Hemorrhage was considered one of the necessary evils connected with the removal of kidney stones until some operators conceived the idea of approaching the concretions by another route. It forced itself upon the attention of the observers that not only the most frequent location of these calculi is in the pelvis of the kidney, but that even stones located in the calices may be reached and dealt with through the opened renal pelvis. The dissecting, splitting and healing of the pelvis does in no way lead to the loss of any secreting structure, and it simply remained a question of technical feasibility to make this operation, *Pyelotomy*, the operation of choice.

While in general it was conceded that the removal of calculi through pyelotomy was desirable, still the advocates of nephrotomy argued against it on the ground of the vulnerability of the pelvis and the difficulties that may arise if the pelvis is laid bare. Kidneys with concretions are always more or less embedded in adhesions, and so is the pelvis, the stripping of which may lead to considerable oozing or tears which are hard to control. The thinness of the pelvic wall may prevent proper union and the restitution of a normally functionating pelvis. It was furthermore asserted that larger concretions could not be delivered through a mere split in the pelvis, or, if such were attempted, it would lead to irreparable destruction of the pelvic wall.

The details of the operation itself I leave to the surgeon and consider only its advantages. After the pelvis is opened the calculi may be removed with either a spoon, tip of the finger or, being too large for either, may be broken up by means of a crushing forceps and then removed by either of the above means, or else irrigated out with normal salt solution. Stones embedded in the parenchyma can be forced down into the pelvis and so be removed with a minimum amount of tissue destruction.

The closure of a pelvis is more simple an operation than the closure of a nephrotomy. A line of fine catgut sutures, covered with a layer of fat, according to Kolischer, is all that is necessary.

To recapitulate the advantages of pyelotomy over nephrotomy: first, absence of secreting tissue destruction; second, less danger of hemorrhage; third, infrequency of secondary nephrectomy if hemorrhage does occur; fourth, the possibilities of a better exploration for the stone; fifth, if there is a bi-lateral involvement, the kidney has not been so destroyed that the two together can not functionate sufficiently.

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PNEUMONIA.*

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Pneumonia demands renewed attention because of its increased frequency and mortality. It now occupies first place in morbidity and third place in mortality percentages.

The report of the New York Health Department, quoted by Holt, shows that in children under two years of age, respiratory diseases cause 50 per cent more deaths than intestinal diseases, which formerly held first rank.

Dr. Rufus Cole reports the results of the study of 500 cases of lobar pneumonia from the Rockefeller Institute. Dr. Stillman gave a resume a year ago of four years' experience with pneumonia from the same institute. Cole's report shows that of four types of pneumonococci, types I and II were present in 60 to 65 per cent of cases, 10 to 15 per cent were of type III and the remaining 25 per cent were of type IV.

The mouths of 527 healthy persons were examined and pneumococci were found in 254. Less than 12 per cent had the fixed types I and II, 17 per cent had type III and 25 per cent had type IV. When organisms of types I and II were found, it was possible to trace a close association between the persons harboring them and a case of pneumonia of the same type. These two organisms tend to disappear from the mouth after a short time, just as they do after convalescence from pneumonia. The interpretation of these facts seems to be that they are to be considered specifically infectious. The infection is probably autogenous in pneumonias due to type IV organisms, and isolation of such patients should probably not be required. With regards to type III, the interpretation of data is difficult. They are virulent, yet widely distributed in healthy mouths, but the questions of infection and isolation have not been determined.

In Dr. Cole's hands, bacterial vaccines have been unproductive of good. But serums from horses immunized to types I, II and III have been prepared and used. The type of pneumococcus is determined in each case before serum treatment is begun. The result of the treatment of cases with type I pneumococci has been gratifying, and there have been but six deaths in 78 cases so treated, a mortality of 8 per cent. This is a great gain over the former death rate of 25 per cent. The effect of serum treatment for types II and III has been disappointing. No serum treatment has been given for type IV.

Rosenow reports a number of cases treated in Cook County Hospital with autolyzed bacterial vaccine. Chill often followed its use and with the exception of a few cases the treatment was unsatisfactory, and its use was not recommended.

Soon after the discovery of the pneumococcus, which is attributed to Fraenkel as the one who demonstrated that it was the cause of pneumonia, experiments were begun with various vaccines and serums, but after a time they were discarded as unsatisfactory. Practically all the various serums and vaccines were used and the return to them would seem like threshing over old straw. As a control to the giving of vaccines and serums, various protein substances and serums, and vaccines from foreign diseases have been injected and crises have been obtained, so that this method of treating disease is yet in the experimental stage only.

Whether we will ever find a vaccine or serum, or whether we will ever find a remedy for pneumonia is doubtful, for doubtless every known substance has been tried.

By the way, a new remedy, optochin, or ethylhydro-cuperin is now being experimented with, and the claim is made for it that it is specifically bactericidal for pneumococci. The recommended dose is about 24 grains in 24 hours.

The mortality of pneumonia as given by hospitals where records are kept is under 30 per cent. What it is in private practice and under

*Read before the Iroquois-Ford County Medical Society, March 6, 1917.

more favorable surroundings, or rather in a better class of patients, has not been determined, and is probably different from year to year, I had almost said in different epidemics. It is probably 10 per cent, but careful records are not kept by the great majority of the profession.

We find a considerables number of abortive pneumonia cases with chill, high fever, rusty sputum and subcrepitant rales, but without hepatization of the lung, in which a crisis occurs in 24, 48 or 72 hours, with rapid convalescence. The treatment instituted during that time is liable to be given credit with having aborted the disease.

In regard to the management and medical treatment, certain practices obtain. First, plenty of fresh air around 65 degrees, plenty of water, baths, sunshine and pleasant surroundings, nourishing and easily assimilated food, freedom from visitors and talking and from mental cares and worries, form the essentials of management, with a good nurse. Nearly absolute rest in the horizontal position, but with an occasional change from side to side, unburdened by many covers. Allow nothing that will increase the rapidity of the pulse or respiration.

For remedies, during the first days of high fever, headache and aching, acetphenetidine. Its ability to promote comfort is remarkable.

Morphin for severe pain and codeine for troublesome cough.

As the pulse is usually slow, out of ratio with the respiration, digitalis should be withheld until the heart needs it.

Some would have us believe that aconite, veratrum, tartar emetic, ipecac, blood letting and even lobelia, as our eclectic brethren would suggest, are useful in the early stages. Well, if your fancy turns to the giving of drugs, go to it, for there is plenty of authority for their use. But do not continue them after the pneumonia has become established and hepatization has taken place. Supporting treatment is then required.

Sulphonal and its congeners may be needed to secure sleep.

In the later stages stimulants such as strychnia, camphor, coffee, aromatic spirits of ammonia and compound spirits of ether may prove useful.

Finally, remember that you are treating the patient and not the disease.

INDICATIONS AND RESULTS IN THE RADICAL MASTOID OPERATION WITH A RESUME OF 26 CASES.*

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The danger of confined pus in any of the tissues of the body is well known to all physicians, but when the retention of pus occurs within unyielding bony walls, then the situation becomes extremely dangerous. This is especially the case when accumulations of pus occur in the osseous cavities of the ear, as in no other part of the human organism is there a locality which is so surrounded by such important structures.

Küster was the first to state that "the rational treatment of chronic middle ear suppuration must be based on the surgical principle that a diseased bony cavity should be opened up extensively, all diseased tissue removed and the source of the suppuration brought clearly to light. Only when this is done are the surgical requirements fulfilled." He proposed chiseling away the back wall of the meatus, converting the external auditory canal, mastoid antrum and cells and middle ear all into one cavity. This was the first definite suggestion of what subsequently became known as the radical mastoid operation.

Schwartze was the first to do a mastoid operation that resembles the operation we do at the present for acute mastoiditis. This operation he did for acute and chronic cases. Some of the chronic cases did not recover and Stacke then described an operation that was to cure chronic cases (the radical mastoid operation), and with some modifications is the one performed today for a chronic suppurative otitis media.

The Schwartze method is the accepted procedure for the cases of the acute process.

The radical mastoid operation is an attempt to remove all diseased bone and to provide absolutely free drainage of all infected recesses of the mastoid cells, antrum, aditus, attic and middle ear, by way of the external auditory meatus.

Indications. The most frequent condition which brings these patients to the aural surgeon and from which they seek relief, is the presence of a chronic suppuration from the middle ear. The largest percentage of cases run between 20

*Read at a meeting of the Peoria Medical Society, Feb. 6, 1917.

and 30 years, due to the wish to be relieved of an otorrhea for esthetic reasons only, with little or no realization of the dangers it might bring on. The ages in my 26 cases were from 16 to 62 years, eleven being under 30 years of age and fifteen above 30. There were two patients on whom a double mastoid operation was performed. These patients usually at the suggestion of the attending physician, seek relief for some more or less obscure, though possibly serious symptoms, such as vertigo, severe head pains or a general lassitude, which do not yield to other treatment. Chronic aural suppurations produce a low grade toxemia and it is often difficult to determine just what is the matter with the patient thus affected. A chronic purulent otorrhea is a positive menace in some cases to the life of the patient, but in other cases the danger of intra-cranial extension is exceedingly remote. The responsibility of the surgeon in his advice to a patient in a case of a discharging ear, is a matter of fine distinction. It is his duty, in patients with signs and symptoms demanding it to state positively that the patient's safety requires surgical intervention, but it is, in other cases, no less his duty to state with equal frankness his belief that operation is not required and without emphasis upon remote possibilities which the patient is not likely to experience.

Politzer divides the indications for operation into two classes—subjective and objective.

The subjective are the "persistence of pain in the ear or over the mastoid process. Permanent or intermittent attacks of vertigo, due to erosion of the external semi-circular canal. Marked cerebral disturbance."

The objective symptoms are: "Where a fetid suppuration has existed a year or longer and local treatment to the middle ear for a period of three months has failed to cure."

In a case such as the above, where local treatment has not brought about a cure, the presence of carious bone is assumed, as local treatment to the middle ear means and includes removal of granulations or polypi from the middle ear. After such removal, if the granulations quickly recur and if the discharge continues, carious bone is surely present. To these I would add the following indications:

Frequently recurring middle ear suppuration with preceding malaise, slight or severe headaches, temperature and tenderness over mastoid. In such a case it may be assumed that the antrum and mastoid cells are the seat of a subacute suppurative process, extension of the bone disease taking place with each succeeding attack.

Another indication for operation in a chronic otorrhea is where the disease is not limited to the tympanum and where operation is prophylactic against fatal results coming without signs of pus retention or visible inflammation of mastoid.

Operation is also indicated in a patient with chronic otorrhea in whom the discharge lessens or stops altogether and pain and tenderness over the mastoid bone follow with relief from these symptoms upon the resumption of the otorrhea.

Chronic suppurative mastoiditis, the result of chronic suppuration of the middle ear, is an operative indication. Such a condition may continue a long time without necrosis of either the medial or the lateral plate of the mastoid antrum. In every case of chronic suppuration in the drum cavity there is a concomitant suppuration in the antrum and sometimes also in the mastoid cells. Chronic suppuration of the mastoid bone may now take one of two courses. Pain in the mastoid with headache and fever without any external mastoid symptoms may indicate an irruption of pus either into the lateral sinus and posterior cranial fossa or forward into the middle cranial fossa, or pain in the mastoid with fever may be followed by tenderness and swelling of the outer mastoid surface and spontaneous opening of the cortex, with escape of pus beneath the dense cutaneous tissues of the mastoid region.

An onset of acute mastoiditis, during the course of a tympanic suppuration, is always an indication for the performance of a radical mastoid operation.

Fistula of mastoid bone, either through the posterior wall of the bony meatus or through the outer cortex, is another indication. In a series of cases of subperiosteal abscess Mygind[1] found that a cortical perforation resulted from an acute mastoid inflammation complicating chronic suppurative otitis media and that in 75 per cent. of these the vault and mastoid cells were filled with cholesteatoma. This observation makes a positive indication for the radical operation in the presence of fistula.

The danger of suppurative labyrinthitis, which

1. Mygind: Sub-periosteal Abscess of the Mastoid Region. Annals of Otol., 1910, p. 529.

has been shown to be due to disintegration or absorption by cholesteatoma upon the bony capsule of the labyrinth also makes an imperative indication for the radical operation with this condition present. A patient in whom cholesteatoma is demonstrated is constantly exposed to the danger of an intracranial complication.

Old healed suppurative cases with sudden marked labyrinthine vertigo is due to spread of inflammation to the labyrinth or pressure from accumulation there. These symptoms may call for the radical operation, but no patient should be subjected to the radical operation until his labyrinth has been carefully tested for evidence of suppurative labyrinthitis. A radical operation cannot be performed in the presence of a suppurative disease of the labyrinth, without taking the greatest risk with the life of the patient, unless at the same time the labyrinth itself is opened and drained.

Where the x-ray shows necrosis, then the radical mastoid operation is indicated. In a large percentage of these chronic cases the middle fossa is found unusually low, the sinus in some instances being so far forward as to occupy the greater part of the antrum, and the x-ray will, in these cases, determine these points.

In bone disease—either a sclerosing or a rarefying osteitis—the operation may be indicated, where such condition produces periodic attacks of mastoid pain after all signs of active trouble in the ear have ceased. (Seven of my cases showed rarefying type of bone disease.)

Another condition which would require operation is a narrowing or complete stricture of the external auditory canal which would lead to the retention of pus.

Other conditions which would necessitate operative interference would be:

Paralysis of the facial nerve. (This would show extensive bone disease and almost always denotes the presence of cholesteatoma and also occurs in tuberculosis.)

Tuberculosis occurring in a chronic suppuration from the ear is another indication. (Pulmonary tuberculosis being a contraindication.)

Any intracranial or sinus involvement or the presence of an oncoming general septicemia would be an indication for the radical mastoid operation.

Also presence of neuro-retinitis or choked disc occurring in a patient with a chronic suppuration of the ear.

Life insurance companies refuse to accept persons with chronic otorrhea. Patients with such a condition should submit to a radical mastoid operation, not only for the preservation of life, but to enable the individual to occupy a better position in the world.

In children the radical operation is indicated only when there is necrosis in both middle ear and mastoid cells.

Children under 4 years should be treated expectantly.

Children from 5 up, with 2 years' suppuration, in whom there is increasing deafness, may be operated on.

Length of Time of Otorrhea. It is impossible to give statistics as to the length of time the otorrhea had existed, but it is safe to assume from the extent of carious bone found at operation that all of these ears had been discharging for many years. Otorrhea had been present in one 18-year-old girl for 16 years and the time varies from this extreme to one in a 39-year-old woman of 4 years' duration, that being the shortest time of suppuration. In a woman aged 42 the ear had discharged for 10 years. A man 42 years of age had had suppuration for 12 years. In another girl of 25 the ear had discharged for 9 years, and so on. In 200 cases reported by Smith[2], 15 per cent. of them had discharged for a period under 10 years, in 34 per cent. it had been present from 10 to 20 years and in 51 per cent. its duration was over 20 years.

Average time for after treatment, in my cases, or until complete cessation of all discharge, was 67 days, or a little over two months. The shortest time in which the ear became dry in any case was 8 days, the longest time required after operation was 4½ months. In one patient there was failure to cure the suppuration after operation and in this case otorrhea had been present for 9 years. This occurred in a girl 25 years of age, whose ear was still discharging 15 months after the operation. Ruttin of the Vienna clinic, in a personal communication, stated that they cure suppuration in 70 per cent. of their radical mastoid operations. In Smith's cases complete cure of suppuration was obtained in 80 per cent.

2. Smith, S. MacCuen: End Results of the Radical Mastoid Operation. Trans. Am. Laryn. Rhinol. & Otol. Soc., 1915.

of cases and the average time of after treatment was 3 months. This period of healing in my cases is somewhat shorter than the average time reported by most operators and I believe the difference in time given by other surgeons, whose averages are about 3 months, is due to the lack of treatment given these patients after they leave the hospital, due in a great many instances to the fault of the patients themselves in not returning for the after treatment. Complete dermatization then takes from six weeks to 3 months in the average cases. When suppuration continues after the radical operation, it arises, in a large percentage of cases from the tympanic cavity, involvement of the latter usually being from a still patulous eustachian tube.

Hearing. The degree of hearing usually depends on the condition of the tympanic wall, as to whether the round or oval window has been disturbed during the operation—the hearing should be as good after the operation, in the average case, as before, if the internal ear has not been hurt.

In my cases the hearing was improved in thirteen, there was no change in ten cases and there was an increase in the deafness in three patients. If before operation hearing is very poor and there are no labyrinthine complications, hearing should be improved after the radical operation. If hearing was only moderately impaired, with no labyrinthine involvement, it would remain the same. If hearing was very good, the patient should be told that the operation would probably make the hearing worse. The results of the radical mastoid operation will be better, especially the hearing, when the operation is performed early. In one case a facial paralysis developed after operation, which has almost entirely cleared up at the present time. This occurred in a woman, aged 42, in whom the suppuration had been present intermittently for 10 years following scarlet fever. The ear before operation was filled with polypi and the woman had attacks of dizziness and headache. In Smith's cases facial paralysis came after operation in eight cases and six of them recovered.

Two patients have died, one aged 55, from pneumonia, four months after the time he was operated on, and who had made a complete recovery from the effects of the operation. The other, a man 45 years of age, died three months after his operation, and it was believed he had entirely recovered. The report of the pathologist at autopsy states, "Psychosis-Organic Dementia." (This man was a patient at the Peoria State Hospital for the Insane.)

Clinical diagnosis not made. Examination of brain. Convolutions somewhat flattened; otherwise normal. On opening the left internal jugular vein, a rather firm, bloody and somewhat fibrinous clot was found. There was marked discoloration of the vein and tissues immediately surrounding. On opening the left lateral sinus, just before it enters the posterior-lacerated foramen, a somewhat purulent looking material was found. Examination of the area of mastoid operation showed it to be clean and free from visible inflammation. Anatomical diagnosis: Thrombosis of left lateral sinus and left internal jugular vein.

This patient never had any clinical symptoms of a sinus thrombosis, his condition, the physicians at the hospital state, being that of a low grade septicemia.

As to the general health of patients after a radical operation, they almost without exception improve and in cases where the chronic otorrhea was of a number of years duration, they state they never before realized what robust health was.

The radical mastoid operation is, as Smith says, "a major surgical procedure when we consider the opportunities for causing irreparable damage. It is safe, however, when done by competent operators, is productive of a maximum amount of good and is wholly justified." As the operation is often performed as the first step for the relief of an intracranial lesion, the recorded mortality, therefore, is due to the complications present and not to the procedure itself. Smith, in his experience, has never seen an intracranial complication develop after a radical operation has been performed. Properly performed, there should not be any deaths, in the absence of cranial complications, from the operation itself.

TUBERCLUAR HIP DISEASE IN CHILDREN.*

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In a paper of this sort I shall necessarily be brief and will confine myself to a consideration

*Read before the Tri-State District Medical Society at Freeport, Sept. 26, 1916.

of the diagnostic features and methods of treatment of this type of tubercular invasion.

Tubercular infections in children are prone to attack the osseous structures and next to the bone of the spine, those of the hip are most frequently affected.

The child will be brought to you complaining of more or less pain, of a slight limp, or both. This pain is especially apt to come on after the child has become tired or been unusually active. It is aggravated by motion of the limb and is apt to come and go at irregular intervals. It is usually dull and aching in type, although it may be neuralgic, and is often referred to the inner side of the thigh, the knee, or even the calf of the leg. At night, the child may cry out sharply during sleep, and waken without consciousness of having had pain. These "starting pains," as they are called, are due to temporary relaxation of muscle spasm, and are not characteristic of tuberculosis, although many cases show them.

The limp is usually slight, appearing after severe exercise or fatigue, and leaving when the child is rested. It may be constant.

The history of the case usually shows that sometime prior to the development of symptoms there has been a fall or injury of some sort to the affected hip. J. B. Murphy particularly emphasized the fact that most tubercular bone infections began after a previous injury. This trauma was not immediately followed by symptoms, but after two or three months trouble developed where the resistance had been lowered.

The child most often appears "run down" and gives a history of failing appetite, loss of weight, and increasing fretfulness. However, one may sometimes find tuberculosis in ruddy, happy looking children. Fever, in the early cases, is not a constant sign.

Upon examination, one may not be able to detect much abnormality. The most constant beginning sign is the markedly rigid attitude in which the limb is held. The position of the leg may be normal, but a marked resistance occurs to motion in certain directions, and such motion is very painful. The trochanter is frequently sensitive to pressure.

Later cases show eversion and abduction of the limb with tilting laterally of the pelvis. There is atrophy and flattening of the gluteal region, atrophy of the thigh and calf muscles, and, eventually signs of effusion and abscess formation, with shortening of the limb. With this, naturally will occur the signs and symptoms of toxemia.

One is not often able to detect other foci of infection in beginning hip tuberculosis in children. The disease may later become generalized, but usually the hip joint, when attacked, is the primary point of onset. The radiograph, which should never be omitted, if possible to obtain it, will usually show an affected area in the neck or head of the femur, rarely the acetabulum.

The various serum tests are not especially dependable in children.

Tubercular hip disease must be differentiated from strains, caries of the spine, rheumatic arthritis, periostitis, acute poliomyelitis and osteo-arthritis or Perthes disease.

Hip joint disease, in the early stages, is often extremely difficult to diagnose, but all suspicious cases in which nothing else can be discovered, should be regarded as tubercular and treated accordingly, for it is in the early stages, before any marked structural changes have occurred, that the most good can be accomplished by treatment.

The treatment of this condition has been much discussed and opinions differ widely as to the best course to pursue. The line of treatment varies with the time in the disease when the patient is first seen. In any event the indications to be met are relief of muscular spasm, correction of deformity, and rest for the parts.

In the early cases the long traction splint, extending from axilla to sole of foot, with pelvic support and arrangement for extension, has worked well in my hands. The sole of the shoe on the sound limb must be raised from one to two inches. Crutches are advisable the first few months. The splint must be worn six months to one year.

This type of fixation allows exercise and fresh air and at the same time affords rest to the diseased joint by separating the sensitive surfaces and limiting motion of the limb.

It is surprising to note how soon a child will learn to accommodate itself to the apparatus, and if the splint be properly applied, with the requisite amount of traction, relief of pain and muscular spasm is marked and satisfactory.

Some men recommend the recumbent posture, with a long splint and Buck's extension, even in the earliest cases. Others use a plaster jacket from axilla to mid-calf.

Nathan, of New York, after an analysis of 200 cases, contends that we have no known means of limiting the destructive action of the tubercular process and that if we would secure the most useful adult limb, we must adopt the plan of Lorenz, of securing bony ankylosis.

This is best accomplished by the application of a short plaster spica extending from the waist to the knee, and permitting the child to walk. This partly immobilizes the joint and, by pressure, increases the inflammatory reaction, causing firm, bony adhesions between the joint surfaces.

In later stages of the disease, with marked deformity, infiltration of peri-articular tissue and bony destruction, with constitutional symptoms, rest in bed and appropriate fixation of the joint are indicated.

With accumulation of fluid in the joint, Murphy's 2 per cent formalin-glycerin solution should be injected after aspirating.

Tuberculin may be cautiously tried with older children.

Finally, surgery is our principal weapon in advanced cases.

Tonic treatment and a full diet should be used, but constitutional treatment is of less importance than mechanical methods of therapy.

Case 1. Florence V., age seven years; patient first seen in July, 1913. Mother died when patient was three. Cause unknown. One year before consulting me patient fell and struck hip on rocker. Complained of pain for two or three days and then no symptoms occurred for several months.

Some time later, after being greatly fatigued, patient complained bitterly of pain in hip and groin and refused to walk for several hours. Was apparently well the next morning. Several weeks later the same symptoms recurred and lasted a day. Gradually the attacks of pain occurred at shorter intervals and an occasional attack of slight limping came on. About this time she began to lose flesh and her appetite to fail.

When patient was first seen she was having one of her attacks of pain in the groin. She lay with the leg flexed, somewhat everted and abducted, and there was intense muscular spasm, so that every movement of the leg produced pain and was resisted. No swelling of hip. No difference in appearance of hips. She looked pale and sick. Temperature, 99.5 degrees. Aside from the hip, physical examination was negative. Tonsils large and rather red, but not sensitive.

The next day she was better, but there was still intense pain on rotation of the limb and some spasm of the muscles. Slight limp on walking. The pain and muscular spasm persisted and a diagnosis of probable tuberculosis of hip was made and concurred in by Dr. K. F. Snyder, who saw the case with me.

Radiographs showed tubercular focus in neck of the femur, close to the head. A long hip splint, with pelvic support and traction device, was ordered and later applied, with instructions to wear continually. Full diet and a cod liver oil prescription given. Three months later there was no pain on slight motion and no muscular spasm.

Splint was worn for seven months and at the end of that time laid aside. At present (Sept., 1916) she shows no sign of former trouble.

Case 2. Robert L., age 4 years. Family history negative. Injured in 1914, by falling from a child's wagon and rolling down a bank four feet high. Following the accident he complained of pain in the left hip and for a day refused to use his leg.

The second day he was better and rapidly improved, but he had frequent attacks of pain and periods of limping. In the early spring of 1915 the pain and limping became gradually worse, and in April, when I first saw him, were practically constant. He also became very fretful and lost considerable weight, but had no night cries.

April 15, 1915, there was a decided limp. Pain was located on the inner side of the thigh, rarely in the hip joint. Throat, chest, abdomen and back were negative. There was no fever.

The left leg and hip were noticeably smaller than the right. There was some lateral tilting of the pelvis. On reclining the left leg was held partially flexed. Soreness when pressure was made on the left trocanter. Resistance and pain when thigh was flexed on pelvis. No shortening. Radiograph not made.

Tuberculosis was diagnosed and a Phelps' long traction splint ordered and applied. Diet of milk and eggs ordered and pushed. Patient was kept quiet for two or three weeks and then allowed to get about. After a month pain ceased and improvement began. Wore splint six months and then discarded it, against my judgment. This patient, at long intervals, shows a slight limp and I am inclined to think this case to be one of the arrested type, with possibilities of future trouble. At any rate he should be closely watched for evidences of recurrence.

MODERN TREATMENT OF DIABETES.

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During the last few years the opinion has been steadily growing, that diabetes is a disturbance of body function rather than a progressive fatal disease. Macleod has described the

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condition as follows: First, there is a weakened function of carbohydrate metabolism; next, a weakened function of proteid function, and third, in severe cases, an imperfect metabolism of fats.[1]

Allen's[2] work on dogs confirms this conception and is a more satisfactory working hypothesis than the views of the Vienna School, for neither the idea that diabetes is nothing but the increased production of sugar without the power of utilizing it, nor the pluriglandular doctrine that diabetes is the loss of balance between antagonistic glands have ever been supported by experimental facts. Allen considers diabetes as being due to a weakness of a body function which among other things, needs rest to restore or conserve its physiological activities and it appears to us that this idea is rapidly gaining acceptance among clinical and laboratory workers.

It certainly simplifies our understandings with the patient and I believe contributes in no small way towards securing our patient's active and intelligent co-operation. Thus, to introduce the matter of treatment by assuring the patient that in the majority of cases diabetes is not a disease but a condition that requires rest, renders our restrictive measures intelligible and ensures more favorable results.

Joslin[3], one of the most enthusiastic followers of Allen, makes the statement: "It is no exaggeration to say that the advance in the actual treatment of diabetes during the twelve months just passed has been greater than in any year since Rollo's time and it should be emphasized that this improvement in treatment comes, not by chance, but as a result of patient scientific experimentation which has been based upon the work of foremost investigators in both laboratory and clinic."

Time will not permit us to go into the details of this treatment, interesting as they are, and we will only mention some of the basic principles.

The underlying principle of the modern treatment of diabetes is based on the fact that while the true diabetic on a non-restrictive diet invariably becomes progressively worse, each one has some tolerance for food and this tolerance is of such a character as will allow sufficient intake of food to cover the essential energy requirements of the body. By first ascertaining the amount of this tolerance, he has, by this method of treatment, been able to maintain and even increase the tolerance. It will be noted that there are many of the older proven methods made use of as well as some features that are in direct opposition to the older ideas.

Allen's starvation method of the treatment of diabetes is based on his experiments on depancreatized dogs in which he was able to produce various degrees of glycosuria and acidosis and conditions clinically indistinguishable from those found in human diabetes. He found that primary starvation and a continued low level of nutrition prolonged the life of the animals, whereas high caloric feeding sufficient to maintain nutrition was a sure method of increasing the severity of the symptoms. It is eminently proper to give Allen the credit of being first to see the therapeutic significance of inanition upon the severe cases of diabetes; to prove that depancreatized dogs upon prolonged fasting would become sugar free, and to have the courage of his convictions to apply this principle to human diabetes.

He starves all patients until they are sugar free then slowly adds protein, fat and carbohydrate to the diet, never allowing glycosuria to return and never permitting the patient to exceed their proteid, fat or carbohydrate tolerance, nor to attain more than a decidedly less than normal weight. The one requirement is that the patient must remain free from both glycosuria and acidosis. Any trace of sugar is the signal for a fast day and while the original fast may require from 2 to 10 days to clear up the urine, the subsequent fasts seldom exceed one day. Generally the first thing given after the fast is carbohydrate. Joslin's tables[5], based on the carbohydrate content of the various vegetables are very helpful in supplying the patient with gradually increasing amounts of starch and sugar. The first day after fasting 150-200 grams of 5 or 6 per cent vegetables are given, this is gradually increased until a trace of sugar appears in the urine which is checked by a fast day. The purpose is to learn the carbohydrate tolerance and to clear up all acidosis.

After this, protein is given in the same manner until the patient shows a glycosuria or reaches a safe proteid ration. In the same manner fats are gradually added, in each instance the

knowledge of tolerance being the essential factor. One of the time honored traditions in the treatment of diabetes was to reduce the starches but to be sure to maintain weight. This Allen[4] specifically warns against as being one of the chief causes probably of past failures in the treatment of severe cases. He regards the initial loss of weight due to the fasting as decidedly beneficial in itself and in the subsequent treatment, the patient is only allowed to put on weight up to a certain point provided always that there is no glycosuria nor acidosis.

In some severe cases it is found necessary to restrict all classes of food and to keep all safely below the limit of tolerance. Occasionally an extremely low proteid tolerance is found and in such cases all carbohydrates are excluded and only as much proteid as will not bring on glycosuria.

It is encouraging to know that up to the present, experience seems to indicate that every patient can tolerate his necessary minimum and that glycosuria appears only when this indispensable minimum is exceeded. The danger of indiscriminate feeding of fats seems to be in the increase of ketonuria and in some cases both acidosis and glycosuria.

In a general way this represents the newer method of treating the mild and moderately severe cases. As a general rule these patients can be kept free from glycosuria and acidosis and to maintain nutrition sufficient for moderate activities. In addition patients do not complain of the carbohydrate restriction as was so often the case with the older methods of treatment.

In the extremely severe cases special hospital and nursing care is essential and modifications in the treatment may be necessary.

Joslin of Boston, who has had a large experience, states that in some cases it is necessary to modify considerably the method which has been outlined. A gradual restriction first of fat then of proteid and finally of carbohydrate with a gradually decreasing dependence on alkali if patient has been using it to keep down his acidosis, will, in a course of ten days or so, render him sugar free.

Exercise: Active physical exercise just short of uncomfortable fatigue is a very important element in the treatment of the disease. Short periods of vigorous muscular exertion after meals increases carbohydrate tolerance and assists in the more complete metabolism of all foods, especially the fats. Patients feel better generally, have better appetites and in every way seem to do better. This is particularly true with children and unless there are contra-indications suitable active exercise should be encouraged.

Glycosuria: Allen has discarded entirely the use of Fehling's solution and in its place employs a formula originated by Benedict. This is a modification of Fehling's solution but unlike it does not react with a number of normal and accidental urinary constituents.

When patients are ready to leave the hospital he supplies each with the solution and directs them to make daily tests, whenever they find a reaction it means a reduction in the daily quantities of carbohydrate until the urine becomes sugar free again. This puts a premium, you see, on good behavior and relieves the physician of a lot of burdensome detail. A weekly test by the attendant enables him to direct the diet and put the responsibility on the patient where it belongs. The treatment of acidosis has been greatly simplified and under the modern dietetic treatment seldom reaches a serious grade. When there is a lessened carbohydrate consumption with a lowering of carbohydrate metabolism the fats are often imperfectly burned and as a result the blood becomes charged with the products of this incomplete combustion. Thus in the course of the disease, especially when simply the carbohydrate was removed from the diet, the fats being continued, the fats were imperfectly metabolized and large amounts of the acetone bodies such as acetone, aceto-acetic acid and beta oxybutyric acids were formed. Unless some means are found to prevent this condition these patients ultimately develop coma and die. By strict attention to the rules laid down, Allen has been able to reduce this danger to a minimum. In conditions where there is a great excess of these acids in the blood or where the condition persists for a great length of time the fixed cell bases of the body become overtaxed in the attempt to neutralize them and a lessened or actual depletion of the alkali reserve of the body fluids and cells occurs. This is acidosis and is best determined, not by the excretion of these bodies in the urine, but rather by the condition of the blood.

The presence of acetone, diacetic acid, etc., in

the urine simply shows that there is faulty metabolism with some excretion of these substances and does not necessarily indicate that these patients have an acidosis. Examination of the urine is not sufficient to decide on a condition of acidosis as a strong reaction may be obtained when no acidosis is present and only a faint reaction at the height of a coma of acidosis. Increasing drowsiness and air hunger may warn the observer of coming danger, but today we depend on determinations of the CO_2 tension of the alveolar air or the reserve alkalinity of the blood. The examination of the CO_2 tension by the Marriott method is rapid and easy and if necessary can be checked by observations on the blood plasma. With a careful persistent attention to detail, clinicians have found that the Allen treatment offers a very satisfactory means of prevention of acidosis and of rendering the patient sugar free.

Alveolar Air: It is known that in pathological conditions associated with acidosis there is an increase in the non-volatile acids in the blood and a fall in CO_2. The evidence may be obtained either by a study of the blood directly or of the alveolar air; the CO_2 tension of the alveolar air being the same as that of the blood.[6]

Marriott in a recent paper[7] has described a very simple bedside procedure by which the CO_2 tension of the alveolar air may be estimated. With this apparatus anyone can in a very few moments make satisfactory observations and with these as a guide the tendency toward a condition of acidosis may be detected promptly and vigorous prophylactic and remedial measures instituted. The treatment of acidosis is largely dietetic and preventative. Some patients show a tendency toward acidosis in their primary fast and when these show a tension below 25 or 20 the fast should be broken by allowing a restricted diet consisting of green vegetables. Later it has been found these cases can be fasted again till sugar free.

Drugs: As a temporary means of replenishing the depleted alkali reserve of the body sodium bicarbonate may be given; but we should remember that it only neutralizes acids already present in the blood and has absolutely no effect on the formation of acids.

Dietetic regulation must control this and alkali should only be used to tide patients over dangerous periods. Sodium bicarbonate may be given by mouth and intravenously; 10-15 grain doses may be given by mouth and 300 to 500 mils of a 4 per cent solution intravenously, depending on the degree of acidosis present. The treatment of complications such as acidosis and coma is prophylactic largely; that of gangrene, neuritis, etc., is that of the basic disease itself.

Our experience here in the hospital with the Allen treatment has been very satisfactory as far as we have gone. Some patients do complain at first but after a while they seem to get into the spirit of the thing and are very eager to hear of the first sugar free specimen. Especially is this so if we have several in the ward at the same time. Some cases, as has been said, quickly develop an acidosis on fasting; these of course are more difficult to treat but eventually you are able to remove the glycosuria and the acidosis and the patient continues satisfied with the diet you are giving him. While the treatment has been used for only a comparatively short time and on a limited number of patients we agree with Joslin that we can be reasonably sure of this: It is possible to render patients sugar free—to keep them so at a slightly reduced weight—and to insure them of a measure of physical health and well being that permits many of them to continue in their usual occupations. The attainment of such a condition without the use of drugs and with a diet that is satisfying is certainly a great improvement on our previous methods.

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CASE HISTORIES

Case 1.—Courtesy Dr. J. K. McQuarrie.

A German woman (Mrs. H. G.) aged 62 years; weight, 190 pounds; housekeeper by occupation, sought medical advice for severe vulvar pruritis and localized areas of eczema on legs.

Family History—Father dead, tuberculosis. Mother

dead, aged 64 years; stomach trouble. One brother has chronic rheumatism; one brother dead, inflammatory rheumatism; one brother dead, cancer of stomach.

Past History—Usual children's diseases. Never any serious illness. Mother of eight children, three living. Three died of scarlet fever in infancy; 1 died of rheumatic fever; one died of pulmonary tuberculosis, aged 21 years.

Present Illness—For the past ten months has had a very annoying itching of the vulva and in spots on her legs. No record of polydypsia, polyuria, headache or loss of weight.

Examination—On entrance, July 10, 1915, her temperature was 99.6, pulse 86, respirations 24; blood pressure, systolic, 154; diastolic, 72. Blood count, 4,528,000 reds; 7,800 whites. Small mono, lymph., 22 percent; large mono. lymph., 8 percent; polynuclears, 64 percent; eosinophiles, 2 percent; transitionals, 4 percent; urine, sp. gr., 1,034; sugar, 2.5 percent; acetone and diacetic acid negative. Albumin negative. Microscopical: feww epithelial and few pus cells; 24-hour specimen: 1,000 cc., sp. gr., 1,030, no albumin; sugar, 5 percent; diacetic acid, negative; microscopical, negative. Chest, negative; abdomen, negative; vulva, reddened, inflamed appearance, with denuded weeping areas, localized areas of moist eczema on thighs. Evidences of itching character of lesions very manifest.

Treatment—Patient was put on fasting treatment with 16 mils. of whiskey in plain coffee every four hours. On the morning of the second day of fast acetone appeared in the urine. Sugar still 5 percent. On the following, the third day of fasting, urine was sugar free, with a trace of acetone still present. She was fiiven 128 mils. clear broth and feeding started with about 100 grams 5 percent vegetables, lettuce, spinach, asparagus, etc. This was gradually increased about 5 grams carbohydrate each day for three days when 20 grams of proteid in form of eggs were given. She remained sugar free and already felt less itching and discomfort. She was in the hospital 26 days. Weight on discharge 176, a loss of 14 lbs., but symptomatically well and satisfied with her diet which consisted of definite portions of asparagus, potato, bran biscuits, butter, orange, celery, eggs, string-beans, tomatoes and bacon. Reports—"free from symptoms."

Case 2.—Mrs. G. American housewife, aged 36 years. Came to Hospital August 8th, 1915, stating that for past few years she had been subject to periodic bilious attacks, at times very severe, lasting from 3 to 5 days and associated with vomiting and headache.

She is a hearty eater and often unusually thirsty. Weighs about 190 lbs. Had gained 100 lbs. in the last twelve years. She tires very easily, has lost in strength, sleeps poorly, and is very nervous.

Family History—Negative.

Past Illness—Unimportant.

Present Complaint—Three weeks ago sugar was found in the urine when being prepared for a minor surgical operation. Lately has been troubled considerably by a pruritus of the vulva and a furunculosis. Her urine on a regular diet was (24 hr.) 1,150 mils.; sp. gr., 1,023; sugar, * * *; acetone, 0; diacetic acid, 0. 5,200,000 reds; 8,600 whites; differential, normal; hemoglobin, 80 percent; temperature, 98.8; pulse, 102; respiration, 20.

On the second day in hospital she was placed on fasting treatment. 16 mils. of sp. frumenti every four hours, in a little unsweetened coffee. After a somewhat stormy period of five days her urine became sugar free; weight, 185 lbs. During the fast several furuncles appeared on her legs, but these soon disappeared without special treatment. On the morning of the 6th day about 100 grams of 5 percent vegetables were given and later additions were slowly made to these, so that by the 20th day she was getting 200 grams of carbohydrate and 52 grams of proteid, in twenty-four hours. On dismissal from the hospital her urine was 24 hours, 1,350 mils.; sp. gr., 1,014; no albumin, no sugar, no acetone or diacetic acid. Symptomatically well and satisfied with her diet when last heard from 6 mo. go.

Case 3.—Mrs. S. German housewife, widow, aged 46 years, fell while hanging up clothes and received a Colles' fracture of the left wrist. She said she thought that she must have fainted. Routine examination of the urine showed a marked glycosuria. She entered the hospital on Oct. 30, 1915, weighing 160 pounds.

Family History—Negative.

Past Illnesses—Has been ailing off and on for some time past. Occasional attacks of biliousness, with headache and dizziness; swelling of ankles; nocturia, polydypsia, some eczema and decided dyspnea on exertion.

Present Illness—Fell while in a faint and broke her left wrist. Did not remember how it happened, or where she had been.

Present condition—Well nourished; muscles soft and flabby; acetone breath; heart, aortic 2nd accentuated; apex ,in 6th space mid-clavicular line valves, competent; lungs, negative; abdomen, negative; some pretibial edema, Colles' fracture left wrist. 4,800,000 reds; 6,700 whites; differential, normal. Urine, sp. gr., 1,032; sugar, + + +; albumin, trace, diacetic acid, present*.

She was put on starvation treatment. After a 48-hour fast she became sugar free and remained so during her stay in the hospital. Gradual increase of carbohydrate and proteid as outlined by Joslin and she left the hospital with no diacetic acid or sugar in the urine. Weight on leaving hospital was 155, a loss of 10 lbs. in weight, but with a very much better physical condition.

Case 4.—Miss H. Irish maid; aged 20 years; weight 102 lbs.

Family History—Father dead, tuberculosis; mother dead, stomach trouble; two sisters dead, tuberculosis; one brother dead, pneumonia.

Past History—Usual children's diseases.

Present Illness—Well until six months ago when she had a gastro-intestinal trouble which was associated with vomiting. A progressive weakness came on with great loss of weight. Her former weight was 130 lbs. and she thinks she has lost a good deal in the last few weeks. Diagnosis of diabetes had been made but diet made her so weak she did not stick to it long.

It required five days of fasting to remove the glycosuria; once requiring a return to coarse vegetable meal to reduce an increasing and alarming acidosis. Eventually she became sugar free, she was dismissed with advice to test her urine every day with Benedict's solution and to return to the office once a week for examination. The nature of her occupation made it rather difficult I imagine for her to stick to any rigid set of rules and I was not surprised when she failed to report as requested, thus passing from my observation.

ALCOHOLISM; ITS PSYCHOLOGY AND ITS RATIONAL CURE BY PSYCHO-THERAPY.*

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CHICAGO.

Habits, good or evil, are binding forces developed by a repetition of thoughts, sensations, or actions, until they have become more or less automatic in their manifestations. They may operate with or without the conscious knowledge of the individual. They may operate even in the face of the strongest opposition of his conscious will. If these habits are the resultants of narcotic indulgence, then we have added to these binding forces the physiological effects of drugs which greatly complicate the problem of a habit cure.

The demand for alcohol as a beverage is almost universal. It antedates authentic history. It exists among the aboriginal tribes of men as well as among the highest types of civilized races. The psychology of alcohol, according to Prof. Geo. T. W. Patrick, has its fundamental basis, not in its pleasant taste or odor, not in its satisfying food value, for this is negligible, not in the commonly accepted theory of its stimulating properties, for its effects, *per contra,* are sedative and anesthetic; not because it increases mental or physical efficiency, for the experiments of Kraeplin, Fürer and others show that both are impaired even by small doses, and finally not in its social amenities, but chiefly because it produces a state of lowered tension or relaxation from the too strenuous emotional, mental or physical activities of life.

If alcohol were not toxic to cell protoplasm; if it did not lower mental and physical efficiency even in so-called "moderation," and if it did not strongly tend to excessive indulgence and narcotic bondage, then we might justly acclaim Bacchus in song and dance as the genial author of one of the greatest blessings to man. Unfortunately its use cannot be safeguarded from any of these dangers, and when excessive its toxicity has well known results. As Alderman Joseph H. Francis aptly puts it in his book, "My Last Drink, "It is the monkey wrench in the machinery of efficiency."

In the lives of multitudes of men and women there comes a time when self-control is lost by self-indulgence in alcohol. Let us take up the subject where Prof. Patrick dropped it, and extend our psychological study to the exaggerated, uncontrollable desire for alcohol known as alcoholism or drink habit. The apostle, Paul, one of the clearest logical thinkers of any age, tersely expressed the unfortunate predicament of the hapless alcoholic in his pitiful efforts to reform. Hear him. "The spirit is willing, but the flesh is weak. For to will is present with me but how to perform that which is good I find not, for the good that I would I do not, but the evil which I would not that I do. I find then a law that when I would do good evil is present with me." The psychological law of evil habits, so well formulated by St. Paul, we wish to interpret in its application to that specific form of evil termed alcoholism.

Man in the completeness of his physical body is an aggregate of component cells, every one of which has its separate individuality. Whether it be liver cell, muscle cell, brain cell, or blood cell, it possesses the power of selecting its own nutritive pabulum, of attacking invading enemies, of secreting and excreting its special products and of reproducing and perpetuating itself in co-ordination with its fellows throughout the entire body, by means of the universal protecting and connecting cells of the nervous and circulatory systems. Alexis Carrell demonstrated that the cell-life of bone, skin and entire organs can be maintained for successful transplantation for many months after the death of the parent body. It seems evident, therefore, that there must be

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an inherent intelligence in each cell, a cell mind if you will. Yes, a soul element, for the body is not the man, brain is not intellect, neither does cell structure constitute function. We cannot define this psychic element, we do not know what it is. Edison knows more about electricity and its phenomena, perhaps, than any other man ever did know, but he cannot tell us what it is. He has discovered how to apply some of its laws, however, with marvelous results. We do not know *how* spirit and mentality are coupled up with the material cell structures of our bodies, but the *fact* of such a union is unquestioned. We do not know how they react upon each other, but we are convinced that reactions do occur. From the subjective standpoint of man, psychology has been termed the science of consciousness. From his objective standpoint it has been termed the science of human behavior. Every outward action, therefore, must first have its *corresponding, basic, inner consciousness.* Alcoholic indulgence beyond certain limits soon becomes a repetition habit through which all the body cells become accustomed to a narcotic effect. This creates a conscious crave or hunger that demands repeated gratification. If the habit is interrupted by compelling circumstances, or by force of will the cell memory perpetuates the demand and the crave for drink remains. The evolution of recurring cell habit arises from the cell memory which reproduces the impressions of previous sensations or activities. This cell memory may remain dormant for a time, and then, with or without apparent provocation, it thrusts itself above the threshold of consciousness and becomes a dominating impulse again. This explains the impelling force which drives the dipsomaniac or periodic drinker back to his cups time after time. Many men of intemperate habits, who recover sobriety of life, experience a more or less constant struggle against this psychic crave for drink. As long as this persists the subject is in danger of a relapse. He has not yet become an immune. It seems conclusive, therefore, that we must turn to psychotherapy in some of its effective applications as the only agent that can nullify the psychic force of the alcoholic crave and establish the desired immunity. There is no known drug that has the ability to inhibit the psychic force of any habit created by another drug. Chemical and physiological antidotes for poisons we have, but not for habits. An analysis of vaunted drug cures will reveal the fact that in the small proportion of cures permanently effected, there is always a concurrent psychic factor, usually overlooked, which has been the real effective agent in the cure and not the drugs administered. Our profession cannot set its disapproval too strongly against the fake drug cures and institutional quackeries that exploit and commercialize the unfortunate victims of alcohol.

Dr. Adolph Meyer, director of the Phipps Psychiatric Clinic of Johns Hopkins University, has truly said: "Habit training is the backbone of psychotherapy; suggestion, merely a step to the end. Action with flesh and bone is the only safe criterion of efficient mental activity; and actions and attitudes and their adaptation is the issue in psycho-therapy." Under given conditions the alcoholic is especially susceptible to the salutary influences of this form of therapy. What are these conditions?

First. Absolute sincerity in his desire to be cured. A favorable antecedent is some strong mental jolt sufficient to arouse in the patient a sense of his abject condition. Something like that which hit the prodigal son when he came to himself. That man who would not take a thousand dollars for his thirst is hopeless.

Second. The intent to become a total abstainer for life. If the patient submits to treatment in the hope of being placed upon a plane of self-control where he will be able to use alcoholics in so-called "moderation" and takes a social glass on occasion, he is doomed to failure. If he indulges such a mental reservation he is not sincere. He must take his stand with that of the late General Frederic D. Grant, who declared, "I do not drink because I dare not, for I have learned that I cannot drink in moderation." "Touch not, taste not, handle not," is the golden rule of safety for the restored drinker. The author recently cured a hard drinker who, many years ago reformed and for thirteen years was a total abstainer. One night at a social function, Manhattan cocktails were served. He pushed his glass aside, but was bantered to eat the cherries which, it was urged, could do no harm, but the brandied fruit aroused the old appetite with irresistible power. He left the table intoxicated and returned to his former intemperate habits.

Third. The ability to co-operate with the phy-

sician. This requires a certain degree of volitional concentration of mind upon the instructions of the operator in his effort to induce a favorable state of heightened susceptibility to appropriate suggestions. He must be able to yield to the induction of a passive or even drowsy and sleepy state. Once this is obtained the patient follows subjectively a train of ideas dictated by the operator and accepts them without question as the very truth. These become dominant rules of conduct when the patient is aroused to the complete objective state again.

Fourth. The resourcefulness and tact of the operating physician. He must understand the adaptation of psychic laws to meet the individual needs of his patient. There is no magic power, no animal magnetism, no mystery in the application of psycho-therapy. The soul, the subjective faculties of the mind, the cellular functions acted upon through suggestion—these are *mysteries,* as are electricity, gravity and life itself. Nevertheless, we have learned important laws concerning all of them and how to utilize them for the welfare of man.

The soul, or "super mind," is the supreme power of the body. The will power of the subjective *soul mind or conscience* can be brought into harmonious co-operation with the will power of the objective *sense, mind or intellect* through properly applied suggestions. The internal conflict between the good and the evil so graphically described by Paul can be repressed and the good made to dominate the evil under a united will. Patients who have been cured of the drink habit by psychotherapy, after repeated institutional drug treatments testify that they are no longer at war within themselves. The lure of alcohol no longer appeals to them. Its psychic influence has been erased from memory by counter suggestions and, therefore, what does not occur to the mind to do (consciously or unconsciously) will not be expressed by corresponding voluntary or involuntary actions.

The crux of this method of treatment lies in *this great fundamental law* of *human suggestibility,* that whatever is impressed upon the subjective consciousness, during a passive state of the objective faculties, which for the time are placed in abeyance, is received without controversy as reality, and the tendency to act upon it as such becomes a dominating mental force. The application of psychotherapy for the cure of alcoholism, therefore, is a *rational* therapy, because it is based upon the known laws of suggestibility. It is safe, agreeable and economic, for the patient may continue, or soon resume his vocation during its course, without publicity or undue sacrifice of time and money spent in an institution. Best of all, a permanent cure is more certain than by any other method, for the psychic impulse to drink has been eliminated, the intrinsic struggle is ended, and only extrinsic or accidental causes are to be reckoned with, against which the patient is also fortified by the same suggestive means.*

Because of the personal equation psychotherapy in alcoholism *is not infallible.* Only a deliberate voluntary act of the patient, however, could cause a relapse. Psychotherapy does not destroy a man's free will. Any of us can commit an act before the day is done, which may land us in the penitentiary. While such a possibility is universal the probability may be almost *nil.* Finally the ability to produce a *psychic* immunity to the crave for drink *cito, tute et jucunde* is *the supreme merit* of psychotherapy for the cure of alcoholism.

MATTERS MEDICAL PERTAINING TO "MARRIAGE" OR THE PHYSICIAN AS AN EDUCATOR.*

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The home is the unit of our civilization, the foundation of our social fabric and the foundry wherein are cast the myriads of human characters that people the land.

Each home is a licensed institution operating under the sovereignty of a state, unrestricted in point of production as to either quality or quantity of its progeny.

Few or no requirements of eligibility are made of either contracting party by the various states on application for a marriage license, although an over production of an inferior progeny is polluting the blood of our race with hereditary taints, thereby retarding racial evolution and burdening society with the care of a vast army of mental and physical defectives.

Under the institution of marriage each of the several states recognize a contract made in due

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form of law by which a man and a woman reciprocally engage to live with each other during their joint lives and to discharge towards each other the duties imposed by law on the relation of husband and wife, thereby conferring upon each other certain rights, imposing certain obligations and depriving each of certain powers and privileges regardless of the ability of either to fulfill said contract in whole or part thereof.

In most states all persons are able to contract marriage unless they are under the legal age, which ranges from fourteen to eighteen for males and from twelve to sixteen for females, according to the statutes of the several states, while no age limit is fixed by statute in the states of Colorado, Connecticut, Delaware, Florida, Maine, Maryland, Massachusetts, New Jersey, Pennsylvania, Tennessee or Vermont.

The following states have no legislation prohibiting the marriage of either physical or mental defectives: Alabama, Arizona, Arkansas, California, Delaware, Georgia, Idaho, Iowa, Kentucky, Louisiana, Maryland, Montana, Missouri, New Mexico, Nevada, New York, North Carolina, Oregon, Rhode Island, South Dakota, Tennessee, Texas, Virginia, West Virginia, Wyoming and Alaska. But of these states: Arkansas, California, Delaware, Georgia, Idaho, Iowa, Kentucky, Maryland, Montana, Nevada, New York, North Dakota, North Carolina, Oregon, Rhode Island, South Dakota, Virginia, West Virginia and Wyoming soothe their legislative conscience by providing for the annulment of the marriage relationship or a divorce where the parties have contracted the relationship if either or both are mentally unsound.

In the following states marriage is forbidden or if consummated the relationship may be annulled if either or both parties are mentally unsound: Colorado, Illinois, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, Utah, Vermont, Washington and Wisconsin. Specifically these laws prohibit the issuing of marriage license where either of the contracting parties is an idiot, imbecile or of unsound mind or some such similar language. And of these states: Colorado, New Hampshire, North Dakota, Oklahoma, Vermont and Wisconsin, in addition to prohibiting marriage license to mental defectives, also forbid the intermarriage of persons affected with some transmissible disease such as tuberculosis or a venereal infection, while the states of Colorado and Oklahoma require a physician's certificate that neither party is affected with such disease. North Dakota requires a similar certificate for men only. The Wisconsin law provides a thorough examination of men by the recognized clinical and laboratory tests before a physician can issue such a certificate. The statute of Connecticut penalizes the intermarriage of either a man or a woman where either is an epileptic, imbecile or mentally unsound, when the woman is under forty-five years of age, by imprisonment for three years.

An analysis of the various statutory laws regulating marriage for the purpose of racial betterment reveals the following startling facts:

That in twenty-seven states either or both of the contracting parties may be an idiot, imbecile, epileptic, or of unsound mind or may be affected with tuberculosis, syphilis or some other transmissible disease.

That nine of these twenty-seven states do not even provide for the annulment of the marriage relationship, or a divorce, where the parties have contracted the relationship when either one or both of the contracting parties are mentally unsound.

That only six of the forty-eight states prohibit the intermarriage of persons affected with a transmissible disease, which is to say that forty-two of the commonwealths of these United States are now issuing annually more than half a million permits to tuberculars and syphilitics alone to found American homes wherein will be born about two million innocent children to a favorable environment of the Great White Plague and the possible heritage of the Great Social Evil.

That only two states require a physician's certificate that neither party is affected with a transmissible disease.

That only *one* state (Wisconsin) has required a thorough examination based on recognized clinical and laboratory tests and is applicable to men only and only for physical defects.

That only one state penalizes by imprisonment for intermarriage between epileptics, imbeciles and those of unsound mind.

A summary of the laws passed by the various states for racial betterment indicates that the public conscience is being aroused and reflects

the appalling and complex state of human society as it exists in these United States in this twentieth century. How complex it is, is indicated in some degree by the vast number of ineffective laws that have been passed by some of our commonwealths and the absence of any statutory protest in other states. But the absence of such a law from the statute of any state does not of necessity indicate an indifference of society to the need of such law, but a silent protest of its legislative body against putting upon the statute a law which its executive body cannot efficiently enforce because of the complexity of society and the rules which govern it.

The rules governing society apply generally to all people alike. They tactily assume that all people are alike, while admitting that there are some who are different and who constitute special classes that must be specially provided for and from which society must be protected. But the difficulty in legislating for the purpose of racial betterment is obvious when we attempt to separate these special classes from the masses. Although well defined at one extreme, at the other they merge with the mass of the population. So it is seen that the individuals constituting these special classes are not in all respects distinct, but rather that they are more or less peculiar in one or more respects. In fact the special classes which are the concern of the Boards and Associations of Charity and Correction consists of individuals with one or more traits that are more or less disturbing to our social organization. These individuals, or rather, their traits, cause a disturbance and an expense of time and money quite out of proportion to their number in the community. They seem to be the main hindrance to our social progress; moreover their number seems to be increasing, hence it is the pressing need of the day to find out the cause and the cure of defectiveness and delinquency.

The diversity of answers to such inquiry shows the depth of our helplessness. Mental defectiveness is ascribed to malnutrition of the fetus, to asphyxiation of the child during labor at birth, to adenoids, to infection with venereal disease, head injuries and many other direct and individual causes too numerous to mention, despite the fact that (excepting Mongolian idiocy) it is usually only in families with the defect on both sides of the house. Likewise criminality is ascribed to poverty, to bad example, to bad or inadequate education, despite the fact of incorrigibility. Wherever there is some relation between the alleged cause and the result, one feels that these explanations are based on the logical error, *post hoc ergo propter hoc*, and that the cart is often put before the horse. The very multiplicity of explanations shows their inadequacy. There is a more fundamental explanation for these non-social traits than any of those that are usually ascribed.

First of all we can see clearly that the traits that cause so much trouble are "unfortunate" or "bad" only in relation to our society, i. e., relatively, not absolutely. Lack of speech, inability to care for the person or to respond in the conventional fashion to the calls of nature, failure to learn the art of dressing and undressing, inability to count, entire lack of ambition beyond getting a meal, abject slothfulness, love of sitting by the hour picking at a piece of cloth, these are unfortunate mental traits for a twentieth century citizen but they constitute a first-rate mental equipment for our remote ape-like ancestors, nor do we pity infants who invariably have them. So likewise with crimes: the acts of taking and keeping loose articles, of tearing away obstructions to get at something desired, of picking valuables out of holes and pockets, of assaulting a neighbor who has caused pain or who is in the way, of deserting family and other relatives, of promiscuous sexual relations, these are crimes for a twentieth century citizen, but they were the normal acts and customs of our remote ancestors, and excepting the last, they are so common with infants that we laugh when they do such things. In a word the traits of the feeble-minded and the criminalistic individual are alike normal traits for infants of today and adults in the earlier stages of man's evolution. There is an aphorism that biologists use which is apt here: ontogeny recapitulates phylogeny, which means that the individual in its development passes through the stages like those the race has traversed in its evolution. The infant represents the ape-like stage.

Just as certain individuals show ancestral or rudimentary organs that most of us have lost, such as a heavy coat of hair, an elongated coccyx, an unusually large appendix, a third set of teeth, accessory mammæ—so some adult person retain certain ancestral mental traits that the

rest of us have got rid of. And just as the heavy coat of body hair can be traced back generation after generation until we cannot avoid the conclusion that these hairy people represent a human strain that has never gained the naked skin of most people, so imbecility and criminalistic tendency can be traced back to the darkness of remote generations in a way that forces us to conclude that these traits have come to us directly from our animal ancestry and have never been purged from our blood.

The question as to how these traits ever came to be so rare in mankind is one concerning the question of human evolution and on this subject there is no historical evidence but Dr. Richard Maurice Bucke in his very remarkable book, "Cosmic Consciousness," undoubtedly gives the ablest account of the evolution of the intellect so far written. He tells us that in the beginning the Creator did not make man with a twentieth century intellect. He did make him with an intellect capable of growth, of expansion, of evolving into something higher. He did that which brought into existence the great drama of humanity with the whole earth as the stage and the time a million centuries.

He tells us in a way hard to disbelieve that there are four stages of intellectual development; the first is when sensation is experienced (the lowest form of life having no perceptible sensation). For ages after sensation, the senses are developed, impressions are made upon the mind by the thousands. Finally new impressions are formed from the old ones as well as from the outside world. Thousands of these old impressions form a new image, and for aeons of ages this development goes on until what is known as simple consciousness is fully developed. This is the consciousness of the higher order of animals, the horse, the dog, etc. To be brief, simple consciousness is that degree of intellect which recognizes objects but does not know that it recognizes them, cannot think of itself as separate and apart—as conscious.

Finally one of these creatures whose simple consciousness is highly developed has some unusual impression made upon its sensorium. It experiences consciousness of itself. As a natural growth the Creator breathes into its nostrils the breath of life and it becomes a living soul, a thinking man. Then language is born, communication is established with some other leading individual of this more highly developed species. An occasional one hears of the new experience, which is called self-consciousness, which is the faculty by which we realize. In ten thousand generations, perhaps millions, it became common, universal, with the human species, until today the chasm between self-consciousness and simple consciousness is the chasm between the human and the brute.

The next step in the evolution of the intellect is through self-consciousness to what Bucke calls "Cosmic Consciousness," and the chasm is as great as that between self-consciousness and simple consciousness but the development much more rapid. Bucke takes the position that while it required perhaps a million years or more likely millions of years for simple consciousness to evolve into self-consciousness, it is quite certain that self-consciousness has existed only about three hundred thousand years, and that we are now on the verge of experiencing Cosmic Consciousness, which is a much higher development, a spiritual attainment, so far reaching, so beautiful and so in harmony with the Divine Consciousness as not to be comprehensible by man in his present state of self-consciousness unless he has ascended close to the summit of self-conscious progress. That Moses, Gautama, Mohammed, Gideon, Isaiah, Paul and many others experienced Cosmic Consciousness during the last few thousand years is quite certain, and that more have experienced it during the last five hundred years than during the three or four thousand years previous, and that Jesus reached the very summit of Cosmic Consciousness.

Let it be hoped that in years to come this high spiritual life may be realized. It is not the mission of this paper to enter into Cosmic Consciousness, however, but the Cosmic Conscious race will not be the race which exists today any more than the present race of humanity is the same race which existed prior to the evolution of self-consciousness. The simple truth is that there has lived on the earth, appearing at intervals for thousands of years among ordinary men, the first faint beginnings of another race; walking the earth and breathing the air with us, but at the same time walking another earth and breathing another air, of which we know little or nothing, but which is all

the same our spiritual life, as its absence would be our spiritual death. The new race is in the act of being born from us and in the near future it will occupy and possess the earth.

This is the civilization that we should strive to attain. This is the standard that all should hold in sacred memory who are interested in racial betterment.

Now, it is clear that after these new traits of self-consciousness became established and formed a basis for the new society those persons who possessed the old traits of simple consciousness stood a good chance of being exterminated, and many a defective line was ended by their death. We are horrified by two hundred and twenty-three capital offenses in England less than a century ago, but though capital punishment is a crude method of grappling with the difficulty of race betterment, it is infinitely superior to that of training the feeble-minded and criminalistic and then letting them loose upon society and permitting them to perpetuate in their offspring these animal traits.

Our present practices are said to be dictated by emotion untempered by reason; if this is so, then emotion untempered by reason is social suicide. If we are to build up in America a society worthy of the species *Man* then we must take such steps as will prevent the increase or even the perpetuation of animalistic strains showing mental defectiveness. Nor are the individuals showing mental defectiveness the only drawbacks to our social uplift. There is a more vast and greater army of defectives possessing stigmata of physical degeneracy whose protoplasm seems incapable of withstanding the ravages of disease, and conditions incident to civilization, and who exist only as protegees to the art and science of Medicine and Surgery. They are parasites to our social body and burdens to our social uplift, many of which succumb annually to the white plague and the great social evil, but not before inoculating our whole social fabric with non-disease-resisting spawns to perpetuate their species. It is true that many individuals from such strains may acquire a relative immunity from tuberculosis and syphilis and gain the ascendency over their mother strain just as civilized man has gained over the aboriginal races. For it is said that as we become civilized we become syphilized, and that ninety-eight per cent of all individuals who have attained adult life have at that time or at some future time sustained a tubercular infection. This may be true or it may not, as *bonafide* evidence is lacking, but the parable of the sower as cited by Dr. William Osler and made applicable to the tolerance and resistance of tuberculosis by the protoplasm of civilized man is explicative just here. "Some seeds fell by the wayside and the fowls of the air came and devoured them up." These are the bacilli scattered broadcast outside the body, and an immense majority of which die. "Some fell upon stony places." These are bacilli that find lodgment in many of us perhaps with the production of small foci, but nothing comes of it; they wither away because the protoplasm possesses the natural immunity inherent in that particular strain. "Some fell among the thorns and thistles, and the thorns sprang up and choked them." This represents the cases of tuberculosis latent or active in which the seeds find the soil suitable and grow, but the conditions are not favorable, as thorns representing the protecting forces of the body got the better in the struggle and an acquired immunity results. "But others fell on good ground and sprang up and bear fruit an hundred fold." These are the one hundred and fifty thousand who die annually in the United States alone with an economic annual loss to society of over two hundred million dollars; these are recruited each year from the strains of our race whose protoplasm has never acquired immunity, relative or absolute, from the scourge of the Captain of the Men of Death. In this country the Irish and the Negro are most frequently diseased. The American Indian is very susceptible to the disease when brought under the restrictions of civilization and he has justly learned to dread the coughing white man, and they die in large numbers of consumption, when exposed to the influences of civilized society, while infection among the Jews is particularly infrequent as regards tuberculosis, and the same may be said of syphilis.

Racial immunity and susceptibility to certain diseases is an established fact, and no less is it the case of certain strains or families of the same race, as any physician doing a family practice must soon take congnizance. I recall at this particular time of taking the family record of

an applicant for insurance which revealed the fact that out of seven deaths, five occurred from pneumonia, and again, in a family of bleeders, four deaths occurred from hemorrhage following trivial wounds or injuries.

I have treated a family composed of three generations for chronic Bright's disease with cardio-vascular complications; the grandmother suffered an apopletic stroke, the mother died at the age of fifty-six from uremic coma after suffering for more than a year from constant headache with a blood pressure of two hundred and forty, while the son, now twenty-six years old, is the picture of health, possessing a physique to be envied by any one, is suffering with an intermittent albuminura, and has frequent attacks of headaches and a blood pressure of one hundred and sixty. That these and many other diseases such as Friedreich's ataxia, Huntington's chorea and even tabes dorsalis, paralysis agitans, multiple sclerosis, muscular atrophy, gout, rheumatism and rheumatic diathesis, diabetes, arteriosclerosis, cretinism, exophthalmic goiter, cancer and cleft-palate frequently present family groups, which cannot be interpreted in any other light than that of hereditary tendencies, or at least atavistic defects of the family protoplasm.

These and many other family characteristics common to all or most individuals derived from that strain, may be sighted if further evidence were needed to strengthen the argument of heredity and atavistic tendencies.

When we look among our acquaintances we are struck by their diversity of physical, mental and moral traits. Some of them have black hair, others brown, flaxen, yellow or red; their eyes may be either blue, green, brown or black, their hair straight or curly; nose long, short, narrow or broad, straight, aquiline or pugged. They may be liable to colds or resistant; with weak digestion or strong. The hearing may be quick or dull, sight keen or poor, mathematical ability great or small, the disposition may be cheerful or melancholic; they may be selfish or altruistic, conscientious or liable to shirk.

It is just the fact of diversity of characteristics of people that gives the bases for the belief of the practicability of improving the qualities of the "Human Harvest." For these characteristics are unmistakably inheritable; they are independent of each other and they may be combined in any desirable mosaic.

The method of inheritance of these characteristics are not always so simple as might be anticipated. Extensive study of heredity has of late years led to more precise knowledge of the facts. The element of inheritance is not the individual as a whole, nor even, in many cases, the traits as they are commonly recognized, but, on the contrary, certain unit characters. What are indeed units in inheritance, and what are complexes, is not always easy to determine, and it can be determined only by the result of breeding. To get at the facts it is necessary to study the progeny of human marriages. Now marriage can be looked at from many points of view. In novels, as the climax of human courtship; in law, largely as the union of two lines of property descent; in society, as fixing a certain status, but in eugenics, which considers its biological aspect, marriage is an experiment in breeding, and the children, in their varied combinations of character, give the result of the experiment. That marriage should still be an experiment in breeding while the breeding of many animals and plants has been reduced to a science, is ground for reproach. Surely the human product is superior to that of poultry; as we may now predict with precision the character of the offspring of a particular pair of pedigreed poultry, so it may sometimes be with men; as we now know how to make almost any desired combination of the characters of guinea-pigs, chickens, wheat, corn, cotton, horses, hogs or cattle, so we hope to do with man.

The manner in which this is to be accomplished belongs to the realm of eugenics in which all people are, or should be, deeply interested; but the results as they are and should not be, hangs like a pall over the medical profession and shuts out, as it were, the star of hope needed to guide and lead us on to a greater endeavor for a higher reward than this world can offer.

The human babies born each year constitute the world's most valuable crop. Taking the population of the world to be one and one-half billion, probably about fifty million children are born each year. In continental

United States, with over one hundred million souls probably three million children are born annually. When we think of the influence of a single man in this country, of an Edison, a Burbank, a Harriman or of William James or Horace Mann, the potentiality of these three million annually can be clearly conceived to be beyond computation.

But for better or worse this potentiality is far from being realized. Over a half-million of these infants die before they attain the age of one year, and a third of all are dead before they reach their twentieth year;—before they have had much chance to affect the world one way or the other. However, with one and one-half million born in the United States destined to play an important part for the nation and humanity, we could look with equanimity on the results. But, alas, only a small part of this ever will be fully effective in rendering productive over three million square miles of territory, in otherwise utilizing the unparalleled natural resources of the country and in forming a united altruistic, God-serving, law-abiding, effective and productive nation, leading the remaining 93 per cent. of the globe's population to higher ideals. On the contrary, of twelve hundred thousand who reach maturity each year, forty thousand will be ineffective through temporary ailments, eight to ten thousand will be segregated in the care of institutions, unknown thousands will be kept in poverty through physical and mental deficiency, other thousands will be the cause of social disorder and still other thousands will be required to tend and control the weak and unruly.

It is reproach to our intellegence that we as a people proud in other respects of our control of nature, should have to support over half a million insane, feeble-minded, epileptics, blind and deaf, eighty thousand prisoners and over a hundred thousand paupers at a cost of more than a hundred million dollars per year. A new plague that would render four per cent. of our population not merely incompetent but as a burden costing society over a million dollars annually would instantly attract universal attention. But we have become so used to criminality, disease and degeneracy that we accept them as necessary evils. That they are so in the world's ignorance is granted; that they must remain so is denied.

ANDREW VESALIUS,

FOUNDER OF MODERN ANATOMY.*

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For convenience of study the history of anatomy may be divided into three periods, as follows: Ancient anatomy, beginning in the time of Alexander the Great and ending sometime after Galen, who lived in the second century of the Christian era; Medieval anatomy, which was coincident with the Middle, or Dark Ages of general history; and Modern anatomy, which had its inception in the sixteenth century and reaches to our time.

Andrew, or Andreas, Vesalius was the founder of modern anatomy just as truly as was Columbus the discoverer of America. Vesalius was a Belgian and was born in the city of Brussels on the last day of the year 1514. On his father's side he came from a long line of distinguished medical men, among whom were famous teachers, accomplished scholars and eminent practitioners. On his mother's side his greatest asset was his mother herself, who was of German descent and whose maiden name was Isabelle Crabbe.

When young Andrew was born his mother had the caul and placenta carefully preserved in the belief then prevalent that these appendages thus cared for would have a beneficial influence on the subsequent career of the newly born.

From the first this noble mother was impressed with the idea that her son was destined to attain to something far above the ordinary; and that she might in some measure contribute to this she took pains to carefully collect and religiously care for the books, manuscripts and writings of his distinguished medical ancestors. For let it be known that the medical ancestry of Vesalius in an unbroken line extended back to his great-great-grandfather. Fortunately this devoted mother lived to see her son come in to what she conceived to be his own when he became a great anatomist, a gifted teacher, an able practitioner and an eminent author.

While yet very young Vesalius was sent to the University of Louvain, which was not far from his native Brussels, and where he soon became so proficient in languages that he could read

*Read before the Champaign County Medical Society January 11, 1917.

Latin and Greek like his mother tongue, and, furthermore, he obtained a good working knowledge of Hebrew and Arabic.

As a small boy he is said to have indicated what would be his future career by embracing every opportunity to dissect mice, rats and other small representatives of the animal world. Having made up his mind to study medicine young Vesalius entered the University of Paris, whose medical department was regarded as one of the best in Europe. This, notwithstanding the fact that medicine was taught in the University of Louvain, and that Louvain, even in that day, more than four hundred years ago, was a renowned institution of learning.

When Andrew Vesalius entered the University of Paris, Jacobus Sylvius was professor of antaomy, and as such was the most popular teacher of his time. The Fissure of Sylvius, Aqueduct of Sylvius and several other anatomical names have served to perpetuate his name to our time.

Here it may not be amiss to very briefly narrate the history of anatomy previous to the time of Vesalius, of whom it may be said that he found that branch of medicine little better than a sort of medical hodge-podge and left it a science. Hippocrates, the Father of Medicine, with all his knowledge and acquirements, knew nothing, or next to nothing of human anatomy. Hippocrates was a Greek and among that people anything short of cremation or prompt burial was regarded as desecration, indeed, failure to make prompt and proper disposition of the dead was a punishable offense.

Alexander the Great, conqueror of the known world, came on the stage about twenty-two centuries ago. When a youth Alexander had the good fortune to have for his teacher Aristotle, the great philosopher, who was the son of a famous physician, and who, furthermore, studied medicine himself and practiced that art to an extent. Indeed, substantially all the great philosophers of antiquity were learned in medicine and not a few of them practitioners. Aristotle was the possessor of one of the most gigantic intellects of all time. He was one of the first, if not *the first* naturalist, and was, moreover, the father of comparative anatomy.

As the teacher of Alexander, Aristotle succeeded in implanting in the mind of the great conqueror a regard for learning and an interest in all else that would contribute to the attainment of knowledge. Later as the world's treasures of one kind and another came to be at the disposal of Alexander, he spared no pains to further this attainment along educational lines, and it is said that with this end in view he had men in practically every accessible country, collecting animals, plants and other objects pertaining to nature, all for the use of his old teacher, Aristotle.

As you all know, Alexander founded a great city in Egypt on the southeast shores of the Mediterranean Sea, to which was given the name Alexandria. Here was located a great museum, which was in reality a school, or more correctly a university. The library of this institution eventually contained nearly three-quarters of a million books and manuscripts. Unfortunately Alexander died before his plans along educational lines were fully carried out, but fortunately for mankind his successors and kinsmen, the Ptolemies, continued the good work, and in due time Alexandria became the educational, as tonitis. The mesoclon may be congested and it already was, the commercial center of the world. Along with its other advantages Alexandria had the best medical school in existence, and in this anatomy was taught from the cadaver. Indeed, the art of dissection, much as we have it today, originated then and there; and was not only countenanced and encouraged by the Ptolemies, but was even practiced by more than one of these monarchs, who personally wielded the scalpel.

The Alexandrian school of medicine produced two famous teachers, namely, Herophilis and Erasistratus, who are entitled to be known as the fathers of the art of dissection. The bodies of executed criminals were turned over to these men for anatomical purposes. Indeed, it is even said that those condemned to death were, before execution, not unfrequently put in the hands of these anatomists for vivisection experiments; hence Herophilis and Erasistratus were pioneer *vivi*sectionists no less than pioneer *dis*sectionists. Under these circumstances it is easy to conceive that these famous teachers were in an almost ideal position to do original work; and some of the body-functions these scientists of twenty-odd centuries ago doubtless had the rare privilege of witnessing while the tortured victim yet breathed and his heart still throbbed. Indeed,

it is not hard for us to conceive that they even viewed the partially exposed heart, itself, in action.

The name of Herophilis has been handed down to us in the term Torcular Herophilis, applied to a cerebral sinus. In addition to his scientific attainments Erasistratus was a most successful practitioner and was patronized by the nobility and members of the royal families. In that period every little square of ground was a kingdom and kings were about as thick as Kentucky colonels are today south of the Ohio River.

The king of Syria consulted Erasistratus for a seemingly obscure trouble with which his son, a young man, was affected and that had baffled all the court physicians. After examining the patient Erasistratus arrived at what he conceived to be the true nature of the affection, but, that there might be no mistake in the diagnosis, he resorted to a very unusual expedient. This was nothing less than to have all the women of the palace pass leisurely in front of the patient while meantime, results were carefully noted. A number of women appeared, stopped a moment in front of the patient, who retained his composure till his step-mother came on the scene; then his bosom heaved, his face flushed and his eyes dropped.

The king of Syria, an elderly man, had taken for his second wife a young and beautiful woman and Erasistratus brought out the fact that the patient, a handsome young man, was madly in love with his step-mother; and believing his case hopeless the victim for some time had not partaken of food with the intent of starving himself to death. All these facts Erasistratus brought out in a confession he secured from the patient. In those days marriage knots were loosely tied and hence easily undone, and when the king learned the truth, he promptly surrendered his young wife to his son; and once more in human history two souls were made happy and two hearts were caused to beat as one. Furthermore, what had seemed an obscure and serious medical case was diagnosed and cured.

From the scientific side Erasistratus gave names to the right and left auricles of the heart. He was also the first to devise and use a catheter for drawing urine from the bladder.

In the next century after Herophilis and Erasistratus, the Romans conquered Alexandria and forthwith a ban was put on human dissection. Some one has aptly said that no one could go further in torturing a man than a Roman, or had less sympathy for suffering, but the moment the victim ceased to breathe his dead body became sacred and to in any way mar its integrity was an act of desecration, that under no circumstances could be tolerated.

Claudius Galen, next to Hippocrates the greatest medical man of antiquity, flourished in the second century after Christ; and although he wrote extensively on anatomical subjects, was, nevertheless, compelled to get his first knowledge from the dissection of animals. He was, however, fortunate in securing for this purpose monkeys, which more than any other representative of the animal kingdom, approximate the human form in structure. As illustrative of the next to impossibility of properly studying anatomy in Galen's time is the fact that he recommended his students to go to Alexandria, in whose medical school was a human skeleton. But notwithstanding Galen's lack of opportunity to study anatomy properly, he not only wrote on that subject, but wrote so extensively and so impressively that he became and remained an anatomical authority for thirteen centuries.

As we have already seen, the dominance of the known world by imperial Rome, which dated from about two centuries before the Christian Era, had the effect to do away with human dissection. Three hundred years after Christ, Constantine, a great Roman emperor, became a convert to Christianity, and for twelve hundred years thereafter the Christian church frowned on dissection of the human body. This period when the church put a ban on the proper study of anatomy corresponds to what is known in history as the dark, or middle ages. However, in this period the monks did a great service for the medical profession by copying the works of Hippocrates, Galen, Razes and other noted medical writers along with all the other classics. Toward the close of the middle ages the ban on dissections was raised to a degree that permitted each of the great universities to have annually one subject for anatomical purposes. In 1314, Mondino, a teacher in the medical department of the university of Bologna, created a profound sensation by publicly dissecting the body of a human female. Further than this, he somehow managed to se-

cure other cadavers and finally published a small manual of anatomy which speedily came to be, and for two centuries remained, a sort of standard. But notwithstanding the exceptional advantages Mondino had his work both as regards text and illustrations was extremely crude. One evidence of its crudeness was shown in the fact that he divided the body into three cavities as follows: The upper, which contained what was termed the animal members; the middle, the spiritual, and the lower the natural members. But despite the development of more liberal notions in high places a strong popular prejudice against dissection prevailed up to the earlier years of the sixteenth century.

We left young Vesalius just entering the medical department of Paris, where, as we saw, he was to get his anatomy from Jacobus Sylvius, by far the most popular lecturer in the great institution of learning with which he was connected and whose classes in anatomy sometimes numbered as many as five hundred. He was conceded to be the ablest anatomist of his generation, but nevertheless most of his demonstrations were made on the carcasses of animals, and he was wont to deliver his lectures while seated on a chair that rested on a raised platform, where he read from a manuscript that contained long quotations from Galen, who flourished thirteen centuries before, and whose anatomical descriptions were in the eyes of the lecturer next to infallible. So infallible indeed, from his viewpoint, that nature might be in error; God All-Mighty might make mistakes, but Galen, never. On the rare occasions when a human cadaver was obtained and the dissection of this showed parts different from Galen's descriptions, Sylvius was wont to insist that since Galen's time nature had brought about a change in these structures for that great authority could not possibly have gone wrong. By the side of Sylvius stood a man with a long pointed stick who endeavored to point out what the speaker was attempting to describe, and which an ignorant barber was blunderingly dissecting with a razor.

Such was the method of teaching anatomy, adopted by Jacobus Sylvius, who, as elsewhere stated, was the most popular teacher of his generation. He was, furthermore, thrifty, and no student was permitted to attend his lectures who had not paid his fees to the last penny. Indeed, Sylvius was so close that in cold weather he was want to hop, skip and jump about his room in an endeavor to worm himself without incurring the expense of buying fuel.

On the rare occasions when a cadaver was put at the service of the lecturer, very much that otherwise might have been obtained for demonstration was lost by reason of the blunders of an ignorant barber who always acted as prosector. For the purpose of obtaining anatomical material Vesalius and his fellow students sometimes visited cemeteries and, for the time being, became "resurrectionists," as those who did this kind of work were called in the writer's student days. In the outskirts of the city was a place where criminals were executed and their bodies left in the open to decay or be eaten by dogs, vultures and other flesh eating animals and birds, and here young Vesalius not infrequently went for the purpose of securing bones for examination and study.

One noted robber was sentenced to death and his executioners in an effort to make his last hours in some degree commensurate with the many crimes he had committed, hit upon the scheme of chaining him to the top of a high iron post and kindling beneath him a slow burning fire. In the end the robber's carcass was baked to a turn and later it became a rare treat for vultures, eagles, hawks, crows and other rapacious birds; and that these scavengers of the air picked the robber's bones clean, goes without saying. However, all the ligaments and some of the articulating cartilages were left in place. Thus, thanks to a slow fire and ravenous birds, was produced a skeleton articulated at every joint, articulated not with common every day wire, but with the same ligaments and cartilage that had long seen service in the robber's many crimes and guilty escapades. Meantime what was happening to the carcass of the dead robber did not escape the watchful eye of young Vesalius, and in due course, aided by fellow students and under cover of night time, the iron post was ascended, the chain detached and the skeleton most fortunately secured. This was the first articulated skeleton of which Vesalius became possessed, but of individual bones he had not a few; and with these he had become so familiar that blindfolded, it was said he could identify any bone in the body.

In prosecuting his anatomical studies Vesalius became a positive enthusiast and as such seemed to be utterly oblivious to the many unpleasant things that necessarily accompany the work of a practical anatomist; hence he not infrequently had in his room sundry anatomical specimens in various stages of decomposition; for it was long before the day of antiseptics and preservative fluids, but fortunately for his personal comfort, malodors and vile smells did not disturb him in the least.

Meanwhile so well versed had he become in all that pertained to anatomy that his fellow students and teachers alike came to have much pride in his exceptional acquirements; and finally he was given opportunity to show what he could do when a human cadaver was put in his hands to dissect and demonstrate before a large audience.

There are other matters of interest connected with the student life of Vesalius that will have to be passed by for want of time, consequently all that need be said is that as time went by he became more and more proficient and his fame extended and was carried, among other places, back to his Alma Mater, the renowned University of Louvain, which in consequence honored him with an invitation to make a public demonstration and dissection before the students and faculty of that institution of learning.

Finally Vesalius began to travel, and among other places visited Italy, then, in many particulars, the most advanced country in Europe, especially from the educational side. Italy had taken the lead in the renaissance movement, or in other words, the transition from the middle ages to modern times, and to that country had come scholars, teachers, writers, and great leaders in thought and advancement. Furthermore, this was the golden age of Italian art—the age of Raphael, Leonardo, Michael Angelo, Titian and other great painters, sculptors and architects.

Vesalius was especially pleased with Venice, where he found a congenial atmosphere and where he remained for a considerable period for the good and sufficient reason that he could have a free hand in his anatomical studies. Finally his reputation as an anatomist of unrivaled attainments was emphasized when the great University of Padua, in Italy, appointed him to the chair of anatomy that was created for this purpose, and which, by the way, was the first anatomical chair in the history of medicine.

From the very beginning of his teaching Vesalius was an innovator, and among other radical innovations did away with both the stupid demonstrator and awkward barber-prosector—the first with his pointed stick and the other with his blundering razor. In a word Vesalius promptly became his own prosector and his own demonstrator. His instruments were few and simple. Scalpels of several sizes, hooks, cannula, sounds, bristles, hammer, saw, needles, thread and sponges. Scissors he seldom used and forceps never. Much of the separation of tissues and structures he accomplished by the deft use of his finger nails. That he was a dextrous prosector and that all his work was extremely neat, goes without saying.

From the inception of the anatomical lectures of Vesalius at Padua, they became and remained immensely popular; so popular indeed, that a special building, called an Aula, had to be erected to accommodate the crowds that flocked to see and hear. In addition to students these lectures and demonstrations were attended by university instructors, city officials, prelates, priests, professional men, dignitaries of one kind and another, and prominent laymen. The seating capacity of the Aula was five hundred and it never failed to be crowded. At one end of the building was a strong table by the side of which hung a skeleton and beneath which was an assortment of bones.

Promptly at the hour designated Vesalius, who was but twenty-two years of age, would take his place at one end of the table and perhaps begin his lecture by demonstrating the simpler things such as the various tissues and structures on the carcasses of animals; after which a human cadaver would be brought in and placed on the table, when every eye became agape and every ear alert that no demonstration might be lost, and no word unheard.

Substantially all the anatomical material was obtained by robbing graves of their occupants and, as elsewhere noted, antiseptics and preservative fluids were unknown. Vesalius, as far as practicable, gave his anatomical lectures in the colder months, and these were continued day-in-and-day-out till the last cadaver was utilized. I said the *last* cadaver, unfortunately the first

cadaver was too often, likewise, the last, by reason of the many barriers thrown around and about the procuring of needed anatomical material. In some fortunate seasons Vesalius was able to have two subjects for demonstration; and in some yet more fortunate, even three. But so unusual was this last experience that the date when a third subject was put on the table, the young anatomist no doubt looked upon as a real red-letter day in his work.

When Vesalius was called upon to fill the anatomical chair at the University of Padua, he was but twenty-two years of age, yet young as he was, his lectures and demonstrations were vastly more popular and attracted more attention than anything else about that famous seat of learning.

In due time after assuming his duties at Padua, Vesalius prepared and published a set of anatomical plates in the form of loose leaves. Of these another has said, "The large size of the plates, their fidelity to nature, and the skill with which they were cut in wood, were features which showed to the world that a real master in anatomy had been born." The drawings and engraving were executed by Van Calcar, a fellow-student of Vesalius, and a student of the famous artist, Titian.

After publishing his anatomical plates, Vesalius began the preparation of a work that was destined to be epoch-making; the Latin title of which was "De Fabricus Humanis Corporis," or in plain English, "The Structure of the Human Body." But in a little time the work came to be known in all quarters as the *Fabrica*.

The Fabrica was given to the world in 1543 and was conceded to be a superb production. The text was clear, the illustrations very fine and the typography beautiful. The art of printing, although at that time only about a hundred years old, was nevertheless so far advanced that able, capable men came to be enthusiastic devotees of the new craft. Such a one was Joannes Oporinus, who printed the Fabrica, and who was professor of the Greek language at the University of Basel. Its illustrator was Van Calcar, before referred to as the pupil of the great Italian artist, Titian. It is perhaps not too much to say that the Fabrica was one of the most attractive medical books ever published. Perhaps the fact that this work was issued from the press during the Golden Age of Italian Art had much to do with its exceptional attractiveness.

While in Basel attending the publication of the Fabrica Vesalius dissected a subject before the faculty of the University of that city and presented its skeleton to that institution, where part of it exists today, and is thought to be the oldest anatomical preparation in existence. As a faithful presentation of the most advanced anatomical science of its day and a superb picturing of form and structure the Fabrica was conceded in all quarters to be without a rival. I said in all quarters, this needs qualification for among a few in the profession, the Fabrica was severely criticised; and of the critics Jacobus Sylvius, the old teacher of Vesalius at Paris, was nothing less than violent. In season and out of season he spared no pains and let no opportunity go by to castigate and vent his spleen upon one who had had the temerity to call in question the absolute infallibility of Galen. But worse yet some of the pupils of Vesalius became his harsh critics.

Disgusted at all this, Vesalius accepted an offer from Emperor Charles the Fifth to become his archiator, or court physician. For be it known that in addition to being a great anatomist Vesalius was a skillful surgeon and an exceptionally successful practitioner of medicine. We can little wonder when all things are considered that Vesalius accepted the tempting offer of Charles the Fifth, who ruled over half of Europe, both Americas, and much more besides. Indeed, Charles the Fifth was the monarch of a larger land area than any ruler before or since his time. This great emperor appreciated the exceptional attainments of Vesalius and let no opportunity go by to show him favors.

Some years later Charles the Fifth resigned in favor of his son, who is known in history as Philip the Second of Spain; and while the new monarch was in no sense the equal of his renowned father, he ever remained a true friend to Vesalius. At that period Spain was mistress of the world and here Vesalius made his home for the most part, but there was next to no opportunity for studying practical anatomy. So little, indeed, that he said that he could not so much as lay his hand on a dried skull, much less have the chance of making a dissection.

Don Carlos, the son of Philip Second, suffered from a severe injury of the head which the

Madrid physicians failed to relieve. Finally Vesalius was called to see the patient and under his care a cure was promptly brought about. Some time before Vesalius had cured the Emperor Charles of a serious infirmity. These and other professional achievements caused the profession of Madrid to look upon the successful court physician with anything but kindly eyes.

It was under these circumstances that Vesalius was called upon to treat a Spanish nobleman who was suffering from an obscure trouble that finally terminated fatally. Stirred with a desire to probe the nobleman's ailment to the bottom Vesalius asked for and was granted the privilege of making a post-mortem examination. In doing this current report had it that having it in mind to remove the breast bone the operator had but little more than made the first incision when it was noticed that the supposed dead man's heart was yet throbbing. To find himself the victim of circumstances such as these in the Spain of nearly four hundred years ago was to Vesalius anything but assuring. To make a long story short he was technically guilty of a crime that for its expiation might exact the life of its perpetrator.

One account has it that Vesalius was tried and condemned to execution and that his friend Philip the Second intervened and saved the life of the unfortunate physician by substituting a kind of penance which involved a trip to Palestine and a visit to the Holy Sepulcher. At all events Vesalius promptly took ship, visited Palestine and planted his feet beside the Holy Sepulcher.

While on this trip Vesalius received word that the chair of anatomy at the University of Padua had become vacant and it was desired that he come and occupy it. This offer came from no less a body than the Senate of Venice, and under these circumstances Vesalius resolved to return to his first love, namely, the study and teaching of anatomy. Carrying out this resolve, or rather with the intent to do so, Vesalius set sail for Venice, then the great commercial and educational center of the world. But, unfortunately for him and no less unfortunately for science, the ship in which he embarked encountered a terrible storm and was wrecked on the barren island of Zante, where the great Belgian anatomist died from starvation on October 15, 1564. That Vesalius should meet his end at this time and in this manner seemed nothing less than the very irony of fate. For more than twenty years he had been a participant in all the luxuries that a wealthy court would supply and had meantime accumulated a large private fortune. Moreover, at the age of fifty years he was in his intellectual, no less than in his physical, prime. To the exceptional education, both classical and scientific, which as a young man, he had acquired, had been added more than twenty years contact with the many distinguished personages in and about the imperial court. With all this on the credit side we can well imagine Vesalius looking out on the future with confident anticipation a few short hours before death so unhappily overtook him.

As before noted, it was the fortune of Vesalius to live in the era of the renaissance, a time when the clouds that had obscured the sky during the dark ages, were rapidly passing and the bright sunlight of the modern era was breaking through and illuminating the path of the wayfarer.

At the time of his birth a quarter of a century had not elapsed since the discovery of America. In the century previous gunpowder came into general use with far reaching results. Likewise the art of printing was discovered, and in consequence the number of books enormously increased. As before noted it was the privilege of Vesalius to live in the golden age of Italian art, and among his cotemporaries were Raphael, Correggio, Leonardo De Vinci, Titian and Michael Angelo, the last a great universal genius who was architect, sculptor, painter and poet, all in one. Another of his cotemporaries was Copernicus, founder of modern astronomy. I wonder how many of my readers know that the great Copernicus was a physician? I confess that I did not know it till very recently when I stumbled on the fact. As the reader may recall Copernicus was a pronounced innovator in the astronomical field, and as such overturned the long accepted Ptolemaic theory that the earth was the center of the universe and about it the sun, moon, planets and stars all revolved. It is an interesting coincidence that Copernicus published his discoveries in a epoch-making book in 1543, the same year that Vesalius gave to the world his Fabrica, another great epoch-making work. In the midst of his work Copernicus was

stricken with disease but in the end had the satisfaction to send from the sick bed from which he was never destined to rise, an approved copy of the work that has made him immortal.

Still another cotemporary was the notorious Swiss physician Bombastus Paracelsus, who with not a little instinct of a quack embodied in his make-up certain characteristics that were of lasting benefit to medicine. He was an iconoclast among iconoclasts, and to show his contempt for authority publicly burned the works of Galen. He was a pioneer in medical chemistry and was the first to use a number of articles that speedily became and have ever since remained therapeutic standards. But the greatest medical cotemporary of Vesalius was Ambrose Parê, the renowned French surgeon, whose brain and heart alike, were far in advance of his time.

In a sense Vesalius lived in an anatomical age, and to even name the men who distinguished themselves in anatomy would be no little task. Let it suffice to refer to Eustachius, who first described the Eustachian tube, and for whom it was named. Fallopius, a pupil of Vesalius and a famous teacher whose lasting monument is the Fallopian tube, which he was the first to fully describe. Another famous anatomist of that period was Realdus Columbus, likewise a pupil of Vesalius. But greater than all these was Vesalius, whom some have not hesitated to name the world's greatest anatomist. This in spite of the fact that his great epoch-making work, the Fabrica, was given to the world when its author was but twenty-eight; and, furthermore, all his anatomical labors were completed before he had rounded out his thirtieth year.

In conclusion the words of Portal seem most fit:

"Vesalius appears to me one of the greatest men who ever lived. Let the astronomers boast their Copernicus; the natural philosophers their Galileo and Torricelli; the mathematicians their Pascal; and the geographers their Columbus, I shall always place Vesalius above all these heroes. The first study of man is man. Vesalius had this noble object in view, and had admirably attained it. He has made on himself and his fellows such discoveries as Columbus could make only by traveling to the extremity of the world. These discoveries are of direct importance to man. By acquiring fresh knowledge of his own structure, man seems to enlarge his existence; while discoveries in geography and astronomy affect him but in a very indirect manner."

A FEW MINOR AILMENTS POTENTIALLY IMPORTANT.*

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"Despise not small things, either for evil or good * * *.—A spark is a small thing, yet may kindle the world."

While reaching out for the great things in medicine, as in life, we should not neglect the little things; therefore, we wish to consider a few minor ailments or abnormalities which, trivial in themselves, often cause distressing symptoms, and occasionally far-reaching and even serious conditions. In brief, conditions actually trivial or benign, but potentially distressing or grave.

Some of these conditions are often not suggested to the examiner by the symptoms, and hence may be discovered only by routine examination, and even when apparent or discovered, are usually not considered of sufficient importance for serious consideration.

Some of these ailments or abnormalities may not be causing any symptoms; others cause symptoms reflexly by virtue of a general nervousness, which symptoms may perpetuate, or even aggravate, the nervous state, and in time may cause organic disease.

We need only remind you of the various *abnormalities of the eyes,* especially such as lead to "eye strain," which frequently in nervous individuals cause various symptoms, especially headache and vertigo, aggravate the general nervous state and which require correction by the oculist before general treatment can be permanently effective.

Chronically *diseased tonsils,* nasal *polypi* and *adenoids* are conditions which occasionally lead to general systemic diseases and may contribute to the causation of such nervous conditions as neurasthenia, epilepsy and chorea. Excision, of course, is here required before the depending condition can be successfully treated.

Elongated uvula is not infrequently the cause

*Read before the Southern Illinois Medical Society at Benton, Ill., Nov. 3, 1916.

of local irritation resulting in disease of throat, often producing such reflex symptoms as frequent clearing of the throat, dry cough, or feeling of suffocation and even asthma; occasionally these symptoms occur only when lying on the back.

We have observed an elongated uvula to greatly aggravate the cough in consumption, which may itself have resulted from the irritation of the uvula, and to be the sole cause of cough in valvular heart disease to which, quite naturally, the cough was attributed. We have also observed the cure of a cough which had been mistaken for consumption by a number of physicians over a period of seven years by amputating a greatly elongated uvula, and again have seen the complete relief of paroxysmal asthma of thirty years' duration by the same means. While prolonged local treatment may relieve the local throat abnormality, permanent relief is only assured by amputation of the uvula.

Diseases and malformations of the teeth may and do cause reflected pains and may be a factor at least in the causation of various nervous and mental states. In this it is not necessary that there be any local symptoms referred directly to the teeth. The most frequent of these abnormal conditions of the teeth are impaction and abscess, but these often cannot be detected except by a competent roentgenographer—one especially experienced in making x-ray photographs of the jaws. I have found these conditions as causative factors in facial neuralgia, but a warning is here necessary against the promiscuous pulling of teeth in this disease, as is often done.

Barclay[1] has called attention to the effects of dental irritation upon the throat, nose and ears, especially from numerous amalgam fillings and devitalized or "pulpless" teeth.

We need only refer to the menace to health caused by absent or decayed teeth.

When these conditions are discovered the correction lies with the dentist, who should have special experience along these lines.

Impacted cerumen in the external auditory canal may cause partial deafness of such slow onset as not to be recognized by the afflicted, and may cause "ringing in the ears," vertigo, feeling of fullness in the head or ears, nervousness and, exceptionally, mental depression bordering on melancholia or a dry cough; the latter by virtue of the fact that a portion of the external auditory canal is supplied by a branch of the pneumogastric nerve. A piece of hardened wax so small as to be overlooked by the casual examiner, may press upon the ear-drum and cause "ringing of the ears," or a distressing vertigo. It requires no stretch of the imagination for one to understand how such symptoms could aggravate "nervousness" or even produce it in one of a nervous temperament.

Removal of hardened wax is usually easily accomplished by syringing with a weak solution of bicarbonate of soda in warm water after previously softening by dropping glycerine in the ear for several successive nights, or by the cautious use of hydrogen peroxide.

Warts and moles, though usually considered benign, not infrequently become cancerous in later life, are frequently present in persons of a nervous temperament and are common symptoms of more serious nervous diseases, notably acromegaly. When occurring on exposed parts such as the face and neck in the male, they are liable to infection by being cut in shaving, and in the female, by the reason of their disfigurement, often aggravate an existing nervousness through self-consciousness which occasionally leads to withdrawal from society and consequent morbidity, so that their removal becomes a necessity.

Though removal of these growths by the knife is reasonably safe, and the electric needle is effective, both are painful unless used under an anesthetic, and a scar usually results, so that I have used the solution of ethylate of soda, which is effective, painless and without appreciable scarring. Though this treatment was a heritage from my father who used it many years ago, I find it is seldom used. A drop or two of the drug should be applied with a glass rod, care being taken not to apply it to the healthy skin, which, however, may be protected by a coating of a bland ointment; nor must it be applied too liberally lest it attack the deeper layers of the skin beneath, although I have never had this occur. It is well to know its action can be stopped by the application of a little chloroform. The dark scab which forms should remain as long as possible to prevent a scar. If the growth has not entirely disappeared, another application should be made.

1. Robert Barclay, M. D., Relation Between Diseases of the Teeth and Ears; Dental Cosmos, May, 1894; also, Dental Irritation as a Factor in Diseases of the Ear, Nose and Throat, Dental Brief, April, May and June, 1906.

I have occasionally found this drug fails to "take hold" of a certain type of warts, and children often refuse to permit its application; under these conditions the warts may be successfully treated by moistening them night and morning with castor oil and preferably covering with oiled silk.

The editor of the *Surgical Clinic* claims (and we take his word for it) the following prescription not only "works every time," but "withers warts while you wait":

℞ Sulphur sub. ..... ʒ v
Acid acetic concent. ..... ʒ iiss
Glycerini ..... ʒ ii

Misce. Sig.—Apply the paste to the warts on small pieces of linen or spread with a brush at night, and wash off the next morning. Repeat until warts drop off.

Superfluous hair on the face is also usually a symptom of nervousness and by its psychic effect may be reflected adversely upon the neurasthenic or neuropathic.

It may be permanently removed by the electric needle, which, however, may have to be used a second time, is tedious, more or less painful, possibly some scarring and somewhat expensive, so that the patient may be given a prescription for barium sulphide, with instructions to mix it with an equal quantity of cornstarch and, after making a thin paste with water, apply it to the affected parts, and let remain from three to five minutes, with assurance that with ordinary care the application may be repeated as often as necessary to keep the face free of this annoying disfigurement. Caution and reasonably good judgment are necessary in this treatment, and it should be used upon retiring, as it reddens the skin for a few hours.

Flat feet or weak arches are a frequent source of discomfort, and may cause pain or aching of the feet, legs, thighs or back.

These are more common than generally believed, and often not discovered by the practitioner because he does not examine for it, or does not recognize that the arch need not be broken to cause considerable distress and even incapacity. So frequently is this condition the cause of pain and distress, that we would advise a search for fallen or weak arches in all cases of pain below the waist, where other cause cannot be definitely determined, and in all chronic cases, since it may, at any rate, be a contributing cause.

Weak arch or "flat foot" is often the cause of the so-called "growing pains," or rheumatism, in children.

Many of these cases are treated for neurasthenia, rheumatism, malaria or sciatica, and I examined one case which the patient stated had been diagnosed by a neurologist as locomotor ataxia.

Edward H. Ochsner[2] gives the following as possible symptoms:

"In the milder cases the patient usually complains of sensation of fatigue, weakness and discomfort even on slight exertion, with a tired feeling, especially on the inner side of the foot or ankle, and a dull ache of the calf with or without pain in the knee, hip and lumbar region." Other symptoms occasionally found are coldness, numbness, cyanosis, increased perspiration of the feet and pain on the plastar surface of the heel and ball of the great toe.

A diagnostic sign[3] is the outward deflection from the perpendicular of the lower end of the tendo Achilles, when weight is borne on the foot.

Frequently the now classic Volkman flat foot imprint will aid in making a diagnosis, though, as before stated, one may have a painful, weakened arch, so called "potential flat foot," without a broken arch and "flat foot."

Without considering the many possible causes of these conditions, it is evident that nervous debility is a fruitful predisposing cause which would in turn be perpetuated and aggravated by the distressing symptoms.

The cure of these conditions rightfully belongs to the orthopedic surgeon, since, as well said by Cooley,[4] "but a small portion of static foot disturbances are traceable to arch disturbances *per se*," however, frequently they may be relieved by the use of arch supports, properly adjusted, which, however, requires judgment in the selection of the arches, and often much patience and persistence on the part of the patient. Perez B. Howard[5] advises the use of air-bulb supports.

Ochsner[6] finds that strapping the foot, ankle

2. Ochsner, E. H.: Saint Louis Clinique, 1907.
3. Helbing, Aus dem Gebienten der Ortho. Chir., March 27, 1905.
4. Cooley, Edward L.: Journal of the Missouri State Med. Assoc., January, 1916.
5. Howard, P. B.: Boston Med. and Surg. Jour., Sept. 16, 1915.
6. Ochsner, E. H.: Loco citato.

and leg with adhesive strips affords relief and is often curative.

Proper exercise to develop the muscles may contribute to a cure, especially in children.

Corns and bunions are not to be despised in our treatment of the nervous, and here the first essential is properly fitting shoes, and here, too, is where the practitioner often meets his "Waterloo," as scarcely anyone will admit his shoes are too small, ill-fitting or ill-shapen, and will proceed to prove (?) it by demonstrating how he can "wiggle his toes." Nevertheless, it is doubtful if corns and bunions ever occur with properly fitting shoes, and in case of corns, the shoes are usually too small, which cramps the toes, the dorsal surfaces of which rub the shoe.

Corns will usually disappear if the feet are soaked in warm water each night, well dried, and shoes properly fitted; they may be removed by painting night and morning for four or five days with a solution of salicylic acid in collodion.

Bunions are usually due to narrow or pointed shoes which deflect the toes, specially the great toes, toward the middle line of the foot. When inflamed they may often be relieved by frequently painting with a mixture of equal parts of tr. aconite, tr. iodine and ether, though occasionally only surgical measures are effective.

Many conditions of the *pelvic organs* give rise to reflex or reflected (deflected) pain, though I have not observed the female generative organs to be as frequent a cause as many writers would lead us to believe; however, some very distressing symptoms occasionally occur.

An intermittent sciatic neuralgia of several years' duration was completely and permanently relieved by the removal of a myomatous uterus. A peculiar, and for a time misleading, feature in this case was the complete relief from pain by a change from a sedentary, to an active outdoor life, such as horseback riding and mountain climbing.

The male generative organs, especially adherent or tight prepuce in nervous children, frequently cause reflex nervous symptoms, often necessitating circumcision, though I am convinced that in many, if not in most cases, the conditions may be fully met by dilatation of the prepuce if properly performed.

Certain conditions of the *colon* and *rectum,* in our experience, are frequently productive of local or referred symptoms, and aggravate a general neurasthenic condition, which may have been the principal factor in their causation.

The more common affections of the rectum are fissures, ulcers, inflammation, stricture and hemorrhoids, and the disconcerting feature is that some of these may not cause any local symptoms. If so, the fact may be denied by the afflicted, which misleads the physician, unless no other cause being found for pain in the sacral region or in the region of the sciatic nerves, particularly if accompanied by constipation, which also may be denied, or auto-intoxication, the attendant insists upon a local examination of the rectum and so much of the colon as is possible to reach, which examination should be thorough and complete.

As stated, I have found rectal conditions which give no local evidence of their presence a frequent cause of referred and reflected pains, especially in the sacral region and in the area of the sciatic nerves, though it must be remembered that these symptoms may also result from displacement or disease of the sacro-iliac joint.

The treatment of these conditions is so varied and specialized that it is impractical for us to even touch upon it; however, we venture the assertion that it is worthy of your serious attention.

Metropolitan Building.

THE ETIOLOGY AND DIAGNOSIS OF ACUTE ENDOCARDITIS IN CHILDREN.

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CHICAGO.

Frequently recognized, but more often overlooked or masked by the subsequent picture of the original malady is the onset of acute endocarditis in children. It is more prevalent than often supposed. In New York City, in 1914, the death rate for heart disease was 169 to the 100,000 population—exactly the same as for tuberculosis.[1] In Massachusetts, the same year, the death rate for heart disease was 15 per cent. of all the deaths.[2] The statistics vary little in the other states.

One of the most valuable and recent scientific progresses in medicine has been the recognition of focal infection as an important factor in the etiology of disease, and that from these foci occur

a general systemic distribution of micro-organisms,[3] which have the property of elective localization.[4] Especially is this most characteristic of the streptococci.[4] The converging trend of the views of English, German and American investigators makes the hypothesis tenable, that endocarditis is caused by a steptococcus variously named: streptococcus viridans or mitis (Schotmuller), the endocarditis coccus (Libman), modified pneumococcus (Rosenow), saprophytic streptococcus (Horder), diplococcus rheumaticus (Poynton and Payne), streptococcus hemolyticus and others. It is now generally conceded that these terms apply to one and the same organism —usually designated as the *streptococcus viridans* group. This term includes, however, a variety of strains of various grades of virulence and which have special affinities for many different tissues. It has, likewise, been recently proved that a streptococcus bacteremia is present, in the great majority of cases of active endocarditis, and probably, in all in some stage of the disease.[5] Of further interest is the fact that strains of streptococcus viridans isolated from the mouths of normal individuals, are similar to those isolated from the blood of endocarditis patients and are capable of producing heart lesions in the rabbit.[6]

In view of these facts, instead of considering the diseases of the heart from the old point of nomenclature—a stenosis, a regurgitation at this or the other aperture, failing compensation and the like (mostly based upon derivation of murmurs)—should we not look upon it as an organ invaded in the process of a bacteremia, and to go one step farther and not only recognize an existing pathology but give to it an etiological qualification? Whether the casual factor reaches its field in accordance with the implantation theory (Virchow[7]) or the emoblic theory (Koester[8]), matters little, just so that we keep constantly before us the facts; that acquired acute endocarditis is secondary, and that the streptococcus or some of its strains, are so often present in scarlet fever, diphtheria, rheumatic arthritis, measles, pneumonia, influenza, typhoid, and in all infections of the pharyngeal, nasal, and laryngeal membranes, and may become elective at any time, and choose the cardiac structures as the field for their operation. In other words, what may be a simple rhinopharyngitis, tonsillitis, adenoiditis or otitis media in a child, may prove to be the beginning of a disastrous heart lesion. The age most incident to acute endocarditis is from the fifth to the fourteenth years. The sexes are equally affected. To illustrate this view of its etiology I will cite, briefly, two cases:

CASE REPORTS.

Case 1. Mary C., first seen by the writer, March 6, 1915. American, age 7 years.

Complaint. Tired, languid, anorexia, slight yellowing of skin, vague pains in extremities, constipated, slightly feverish at times, shortness of breath.

Family History. Father non-alcoholic, mother neurotic, gave history of chorea as a child with no apparent heart sequelae. No rheumatism, tuberculosis, or lues. Two brothers older, one sister younger, all well.

Previous History. Breast baby, thrived well till weaned at twelve months. From then till eighteen months old did not do well because of improper feeding. Teeth, sitting, talking, walking normal in event. No illness during the first eighteen months. Since then has had repeated attacks of "colds," measles, varicella, two attacks of bronchitis. No history of tonsilitis, running ears or arthritis.

Present History. Ten days ago, child had "head cold," running nose, and slight redness of throat with fever. Mother states that it was no more severe than other similar attacks to which she was subject. Did not call physician. Kept child in bed and used home remedies. Seemed to improve for 6 or 7 days, when mother noticed a return of the fever, a malaise, and yellowing of the eyes and skin, at which time she brought the child in for examination.

Examination. General Condition. Fairly well nourished child, weight 45 lbs. Head, chest and length normal in ratio. No signs of old rickets. Conjunctiva, mucous mebrane of the mouth, and skin markedly jaundiced. Temperature 101; respiration, 22; pulse 120 and irregular. No cervical adenitis.

Ears. Purulent discharge for the last 5 days from the left ear. Right negative.

Nose and Throat. Slightly injected. Tonsils hypertrophied.

Teeth. Slight carious.

Chest. Lungs. Few scattered rales otherwise negative. Heart. No increase in size 12cm. in diameter. No misplaced apex. A soft blowing, apical murmur not transmitted. No accentuation of the second sound.

Abdomen. Liver two fingers below the costal arch. Spleen not palpable. No rigidity or tenderness.

Reflexes. Normal.

Urinalysis. Nothing of value.

Diagnosis. Suppurating and draining left otitis media. A catarrhal jaundice, and a probable beginning invasion of the endocardium following a rhino-pharyngitis.

Treatment. Eliminative. Rest. Ice cap to the heart. Irrigation of the ear.

Subsequent History. March 10, 4 days later, sharp rise of temperature to 104; severe pain in head. Ex-

amination revealed an acute otitis media of the right ear, no tenderness over the left mastoid, liver about one finger, heart murmur more harsh, otherwise the same findings. Ear cleared up with phenol and glycerine. The suppurating ear cleared in three weeks. April 1, 1915. Examination. Ears negative, lungs negative, liver normal in size and no jaundice. Slightly irregular. Temperature: pulse rapid, over 100; youthful type of irregularity not present. Harsh, rough systolic murmur transmitted well into the axilla. Heart diameter by percussion, 13 cm., which is more than when first seen. Blood examination showed slight leucocytosis 9,200 and a micro-organism resembling the streptococcus viridans was obtained by blood culture.

This case seen at broken intervals, showed a slow progression of the process in the heart for a time. When last seen, Dec. 14, 1915, a picture of a chronic endocarditis presented itself.

Conclusions. What was apparently a simple rhinopharyngitis, became a bacteremia with the biliary tract, the middle ear and the endocardium, the varied seats of election for the offending organisms.

Case 2. Barclay G., aged 7 years. American school boy, Gary, Ind. Referred for diagnosis, May 4, 1914.

Family History. Neither parent neurotic or rheumatic. Only child.

Past History. Normal birth, weight 10 pounds; breast fed till 9 months; talked, walked, and cut teeth normally; not constipated. Never ill till present.

Present History. Feb. 8, 1914, felt languid, followed by sore throat. Temperature, 102; considered of little moment by attending physician. Returned to school in a few days, continued for one week. On the Friday of this week, coasted a little after school, came home and complained of feeling as the child put it, "My stomach feels all mixed up," and threw himself on the bed. He was put to bed. Temperature was 99; and he was given a laxative. The following day, Saturday, felt languid. Sunday, temperature, 101; vague pains through body, abdomen sensitive, no vomiting. From this time, March 1, to March 4, the diagnosis was variously made as either typhoid or appendicitis. The former was finally ruled out and the child prepared for operation. On this day it was noted that he was unable to walk or move his limbs without pain, so the operation was postponed for fear of a possible paralysis. Child taken home and kept at rest. In two weeks seemed better, but far from well as the child could be up only part of the day. No mention was made of a heart affection in these examinations. In April began to have an irregular type of fever, twitched a great deal, lost weight, and coughed spasmodically. This phenomenon with slight breathlessness, progressed till the child was brought to the office May 4, 1914.

Examination. General Condition. Fairly well nourished, bright child. Complete inco-ordination of muscles of locomotion as well as speech—a perfect picture of chorea. Weight, 49 pounds; temperature 100, pulse 120, irregular. Coughing constantly while at the office.

Nose, Throat and Ears. Negative. Tonsils not enlarged.

Chest. Lungs. Few rales, otherwise negative. Heart. Harsh, musical systolic apical murmur transmitted all over the chest. Heart diameter by percussion, 14 cm.; accentuated second sound, misplaced apex beat.

Abdomen. Sensitive over lower right quadrant.

Reflexes. Exaggerated. Blood and urine not examined at this time.

Diagnosis. Endocarditis and chorea following a tonsillar infection.

Subsequent history interesting. The home of the parents formerly being in Philadelphia, they decided to take the child there for the rest which was ordered. On their arrival three days later, Dr. H. R. Wharton was consulted as to there being or having been a probable appendicitis. His diagnosis was negative. Dr. S. C. Hamil and later Dr. Lambert Edgar saw the case and substantiated the diagnosis made. The child was put to bed and in 72 hours there was a marked improvement, so much so that it was commented upon. Kept at rest for eight weeks, partial rest for eight weeks longer. In the fall returned to Chicago and was seen by me on Oct. 16, 1914. In excellent condition. Heart rhythm good, pulse 80, murmur harsh, presystolic and transmitted. Diameter 13 cm., weight 56½ pounds. Since that time with intermittent rest periods and watching his heart tolerance he has gradually improved. Seen last on March 3, 1916, he weighed 65¾ pounds and was enjoying a fair degree of health, but presented the picture of a chronic endocarditis.

It is convincing to a close observer that infection, no matter how slight, once reaching the heart, is simply the beginning, in the majority of cases of a progressive chronic inflammation. This may be either slow or rapid according to the virulence of the invading micro-organisms, and thus described clinically as benign or malignant. It likewise is evident that if, in rare instances, it becomes an arrested or healed lesion, that an irreparable damage is the result.

In the discussion of the diagnosis it is not my intention to present anything new nor a stereotyped method of elicitation or interpretation of findings, that if followed would always insure a positive diagnosis, but rather to refer to the difficulties that present themselves because of the vagueness and indefiniteness of the symptoms and signs of this disease and to show that only by the deduction of their individual values and the relative importance of each, correlating and viewing them in toto, can we hope to be acquainted at all with endocarditis in its incipiency. The picture of acute endocarditis with its paucity of physical signs, vague symptoms, slight febrile reaction and possibly a soft, blowing systolic murmur (often incorrectly interpreted because of the commonly accepted view of

the relationship of a murmur or adventitious cardiac sound, to a heart lesion) is not the picture of chronic endocarditis with its more definite markings. For instance, its presystolic murmur transmitted, cardiac hypertrophy, the systemic effects and intermittent periods of failing compensation, all further corroborated by radiography. And yet, the first should be early recognized in order to limit the degree of the second.

The functional symptoms of acute endocarditis are varied and of little value. In fact, symptoms may be entirely absent. There may be shortness of breath on exertion, restlessness, prostration, anorexia or a condition of "not feeling or doing as well" in an otherwise normal convalescence. There is always a rise of temperature, but of no definite type. The pulse rate is always accelerated, but the rhythm usually remains unchanged.

The structural signs and symptoms, elicited by physical examination, have to do with the size, rhythm and sounds of the heart. In the examining of this organ of a child, a few salient anatomical and physiological characteristics must be kept in mind. The child's heart in comparison to the rest of the body, is relatively larger in size than that of the adult, and the lumina of the large arteries are relatively larger. The relation of the volume of the heart to the circumference of the aorta in earliest childhood is as is 25 to 20; at puberty as 140 is to 50, and at maturity as 260 is to 61 (Baginsky). The volume of the heart grows to twelve times its size from birth to puberty, while the circumference of the aorta only grows to three times its original size. Besides these, another great advantage to the child is that the circumference of the heart does not increase the first five years of a child's life, but the size and weight do. Therefore, the heart muscle is heavier and bulkier and more resistant without needing compensatory hypertrophy.[9] These two factors are responsible for the slow increase in area of dullness during an attack of endocarditis in the child. The diameter of the normal cardiac dullness, as outlined by percussion, varies with age. It is rather constant from one to five years, being about 10 cm.; at four to nine years, 11 to 12 cm., and, from ten to fifteen years, 13 to 14 cm. Percussion, being of value only in outlining the cardiac dullness, gives little or no information in acute endocarditis of children for reasons stated above. Auscultation, however, often reveals the presence of a murmur which may be the only apparent symptom of the disturbance, and yet the most difficult of all signs to interpret. When is a murmur of value and when not? How to avoid the reducing of the child to a state of invalidism, often done by laying too much stress upon the murmur, but at the same time to early detect the ravages of a true endocarditis? Are questions to be answered.

Murmurs. In the classification and derivation of murmurs, a few pointed facts are worthy of mention. Because of its sensitive mechanism, the young, healthy heart may have marked variations in its size, rate, rhythm, and especially in its sounds. As to the last, little is known definitely of their causation. Therefore, an adventitious sound or murmur heard in this region means nothing, *per se,* and its mere presence should not be the basis alone of estimating the condition of the heart.

Murmurs are generally designated as *functional or hemic* and *organic.* These types may be differentiated as to location, character, quality and time of occurrence in the cardiac cycle of heart sounds. A murmur soft, blowing, systolic, and heard over the base is seldom organic; a murmur harsh or musical, diastolic or presystolic, heard over the apex and transmitted, is seldom functional. The *intensity* of a murmur bears a direct ratio to the amplitude of vibrations in the blood stream and, therefore, to the force of cardiac contractions and is not at all a criterion of the gravity of a lesion.[10] *Posture* also influences the loudness of these sounds, some being more plainly, others less distinctly heard in the recumbent position. Mitral systolic murmurs, for instance, are more often louder in the upright than the supine posture.[10]

Organic murmurs must not be confused with:

1. *Cardio-pulmonary murmurs* (the systolic vesicular breathing according to Wintrich). They arise in the portion of the lung nearest to the heart and are due to the entrance of air into the edges of the lungs during inspiration, this air being changed regularly with systole and diastole. Recognized by their variability, become louder when respiration pauses during inspiration, weaker or wanting when the breath is held during expiration, occur more after the third year and in excitable children, and slight pressure

of the stethoscope increases them while more pressure obliterates them.[11]

2. *Compression murmurs.* Pressure of the stethoscope over the chest wall of a rachitic child may change heart sounds into murmurs.[11]

3. *Intra-thoracic venous murmurs* are frequent in all periods of childhood. Due to pressure on large vessels by bronchial glands, enlarged thymus, etc.[11]

4. *Pericardial friction murmur,* the pressure of 'scope intensifies it. And *pleuro-pericardial murmur,* from the friction of the heart on a roughened pleura, disappears when breath is held.[11]

And again, during a febrile illness, functional murmurs frequently appear. These are due to the temperature or the toxins produced by a microbic invasion of other parts and are of little moment. But, it is difficult to distinguish them from murmurs due to actual lesions of the valves, yet this is imperative. In fact, it may be necessary to wait till the fever subsides in order to be certain of their true significance. If then there is an absence of other cardiac disturbances, such as increased size and rhythm, and especially if there appears well marked the physiological phenomena termed *the youthful type of irregularity,*[12] it may be inferred that the heart has escaped. This last point is important and may be of great assistance in clearing up a diagnosis. On the other hand, if the murmur changes its character from day to day becoming more musical in quality and an increasing rate of pulse persists, it is probable that the heart has been invaded.

Other symptoms might be mentioned, as emboli, especially cerebral producing hemiplegia, and punctate hemorrhages into the skin and mucous membranes. And, finally, a blood culture and leucocyte count may aid in corroborating the above findings.

Thus, the complex syndrome of an apical, systolic transmitted murmur not modified by pressure with the stethoscope or by respiratory pauses; an irregular rapid pulse, misplaced apex beat, irregular type of fever, with or without a slight increase of cardiac dullness following in the wake of any infection, should direct suspicion to the probable invasion of the cardiac structures, and should be sufficient reason to keep the case under surveillance until the diagnosis can be ultimately established.

The excuse, then, for this paper, is:

Because of the prevalency and the progressive nature of endocarditis.

Because, in the newer knowledge of the etiology of disease, cardiac structures occupy a vulnerable position in the role of focal infection.

Because childhood is the more susceptible period of these infections *it is important* not only to diagnose endocarditis in its incipiency, in order to guard and protect the life of the individual, but that all prophylactic measures and methods known today for its prevention should be instituted. For once endocarditis manifests itself in a heart, the damage is forever and beyond repair.

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SURVIVAL OF SUPERSTITION AS FOUND IN THE PRACTICE OF MEDICINE.*

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Superstition, even at its worst, is only a relative term. We might easily agree on a definition but differ widely on the application. I will give two concise definitions: "A fixed belief without reason" and "A groundless belief in supernatural agencies." Superstition is not only a relative term but it is also an objective term. It is rarely or never a subjective term. The faith of one is the superstition of his neighbor. What we denote as superstition may have been the sound faith of our fathers. We are now fairly well informed of the controlling laws of many phenomena which only a few years ago were considered as the direct acts of Providence. I remember when a boy of asking a physician the cause of cerebro-spinal meningitis and the pitying glance he gave me as he asked "what caused any disease." No one present apparently

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had any idea that this disease had a direct specific cause or was in any way preventable.

Present day medicine is not a recent creation. It is an evolution so old that it is lost in the obscurity of the twilight ages. Among primitive people was the belief that but for external causes man would be immortal; that death was always due to some enemy, either human, deity or demon. And it was in the instinctive love of life, in the warfare against these real and supposed enemies, that the practice of medicine had its inception. Out of complete ignorance, universal superstition, burdened with the myths and legends of the old pantheism, this belief in immortality and this striving after eternal life has evolved our noble profession.

Medicine is often spoken of as a sacred profession, but in the beginning it was entirely in the hands of the priesthood and in the guise of religion. And the cause of disease was usually referred to some deity or demon, so treatment was by prayer, sacrifice, incantation, wearing of charms or amulets. And today we might find some in Freeport who would tell us disease is only error and recommend prayer, incantation or absent treatment. Or we might find the man who carries the buckeye for rheumatism. In some languages the words medicine and mystery are derived from the same root and have nearly the same meaning. The first physicians of whom we have any record were the Egyptian embalmers, who do not seem to have been very popular, as they were often stoned after performing their duties. This was a bad precedent, as ungrateful patients still manifest the same disposition. The Egyptians, Chaldeans and probably Hebrews often exposed their sick in public places, so that they might have the benefit of those who had similar troubles. Another bad precedent of telling all your troubles to the sick. The most rational idea which has come from the Egyptians was that all who recovered must go to the temple and record their symptoms and method of cure, but as no records were kept of those who died this data must have been incomplete and misleading. In the code of laws of Hamurabi are many relating to the practice of medicine and establishing a fee bill for many services. This code is one of the oldest known, antedating the laws of Moses by about 400 years. Chinese medicine has always been a horrible mixture of ignorance, cruelty, superstition and disgusting materia medica with no rational basis, and from it we have nothing of value. The Hebrews had laws of hygiene for their every day life, preparation of food, care of the dead, quarantine of contagious diseases and regulation of marriage, far ahead of their times, but in the study of disease they made but little progress.

Hippocrates, who flourished in Greece about 400 B. C., appears to be the first to recognize the dignity of the profession, and the first to separate the practice of medicine from the priestly office. Having but little knowledge of anatomy or physiology, his treatment was empirical, but his methods were those of the true scientist. His observations were so keen and his deductions so accurate as to be valuable after 2,000 years. He appears to be the first to refer diseases to their efficient causes rather than to some offended deity or demon, and to him may be ascribed the beginning of the liberation of medicine from universal superstition, and he well deserves the name of "Father of Rational Medicine." During the next 800 years, up to the fall of the Roman Empire, medicine progressed slowly, but always hampered by prevailing superstitions.

Following the decline of paganism and the establishment of Christianity, medicine retrograded rather than advanced, as all the learning of the times tended towards religious controversies over trivial questions, and the study of anatomy was forbidden by the influence of the church. The only progress during this period was by the Arabians, who were then at the height of their power and influence. It was not till early in the 17th century that there was much serious investigation by medical men along truly scientific lines. Then Harvey discovered the circulation of the blood, then Peruvian bark was used for malaria, although empirically till recently, then began the experimenting of the action of drugs on living animals, thus initiating a rational method of treatment.

But during these same years we find learned scholars gravely asserting their belief in witchcraft, treatment was often by charm or incantation, and the frequent epidemics were regarded as evidences of divine displeasure rather than of faulty hygiene. In these years of real progress in the puritan town of Salem, Mass., twenty persons were executed as witches. Later, when

Dr. Jenner introduced vaccination as a preventive of smallpox, there was violent opposition by well meaning persons who asserted he was interfering with a divine prerogative. When Sir James Simpson used the recently discovered anesthetics in obstetrics he was fiercely assailed by the clergymen for interfering with the primeval curse "in sorrow shalt thou bring forth children."

During the past 200 years progress has been continuous. Mists have been cleared away. Efficient causes of disease have been determined. A better knowledge of anatomy, physiology and pathology has opened the way to rational treatment instead of the former empiricism. Since the perfection of the microscope and other instruments of precision, progress has been very rapid. No problem seems too difficult to undertake, and never was hope for the future brighter than today. But is this light of reason universal? Have intolerance and superstition disappeared from the learned and to be found only among the illiterate and ignorant? Have we any who would put the brake on the wheels of progress?

We have among us a pseudo-religious organization, known as Christian Scientists, so-called, as some one said, for the same reason that guinea pigs have their name. "They are *not* pigs and do *not* come from Guinea." When a bill was before Congress to establish a National Health Bureau, it was opposed by the National League for Medical Freedom, including the Christian Scientists, the worst of our quacks and the manufacturers of the most fraudulent patent medicines.

The writings of the great leader of the Christian scientists are often so obscure that it is difficult to grasp the meaning, if any were intended, but here are a few plain quotations:

"It is *not* scientific to examine the body to determine if we are in health." "The evidence of your senses is *not* to be accepted in cases of sickness." "The only effect produced by medicine is dependent on mental action."

They are irrational in the claim that medicine has no effect except by mental action, as they recognize that it may kill in toxic doses with or without mental action. The Christian Scientist also teaches what he calls "malicious animal magnetism," that is, that one person may with evil intent inflict serious injury on another even at a distance solely by mental means. This is only a recurrence of the old belief in the evil eye for which witches were burned 300 years ago. Only a few years ago a case was brought into court in which one of this cult was pleading that he had suffered severe injury by this malicious animal magnetism. It seems a strange coincidence that this suit was brought in Salem, Mass., where witches were executed in the 17th century. Christian Science is not a true science as it is not founded on systematized facts but on a sweeping assumption, contrary to universal belief and experience, and the accumulated facts of the ages. It is a fixed belief without reason; it is a groundless belief in supernatural agencies. It is superstition. But as this is a relative term, so the Christian Scientist from his superior plane, calmly answers "All medicine is superstition."

Let us consider some other superstitions now prevalent. An old woman told me she had a remedy for afterpains. Take some chips from the hog trough where it is worn smooth by the hogs rubbing on it, make a tea of these and you will have a specific. In measles with delayed eruption I have been told that "nannyberry" tea will be useful. You can secure the berries in any sheep yard. I have never given these prescriptions a fair trial and so cannot vouch for them.

When everything else fails in heartburn take three living earthworms, wrap them in a plantain leaf and swallow entire. I told a father his baby had thrush. He told me a few days later that he knew what to do when he knew what it was. He got a live minnow from the river and put it in the child's mouth, which resulted in a speedy cure. He said a small frog would do as well but neither must be washed, as the slime was the active agent. In almost every case of erysipelas some kind friend insists that a string doctor be called. The string doctor passes a cord over the eruption, says a few magic words and the cord must be burned. I once had a case in which I learned later I had the assistance of a string doctor and a Christian Scientist, and the patient recovered in the usual time. I was called to see a baby whose grandmother said had the "go backs" and insisted that it be taken to a wise woman in Polo, who would powwow over it and effect a cure. I was once told if I would nail a lock of my hair to a tree, cut off the

lock and leave it there, I would not have asthma. I neglected the treatment and occasionally have asthma. In an obstetrical case the mother requested that some of the placenta be preserved as a neighbor wished to remove a birthmark from her child. I have been asked the time of the moon to wean a baby and have been compelled to confess my ignorance. A family once delayed a tonsillectomy. The father exlained later that they waited for the dark of the moon to lessen hemorrhage. I have seen people badly worried when the patient improved on Sunday, and a teacher in a normal school told me she was not superstitious but she would not allow her mother to have an operation on Friday. I am often asked if a child is liver grown. I cannot describe the disease but can give the treatment. Take the child by the left leg and pass it three times around the leg of a table. A man finally found a sure cure for rheumatism. It was to carry a potato in his pocket. A doctor in southern Indiana was nearly mobbed when he trimmed the nails of a pneumonia patient. The natives expected death after this treatment.

A Minnesota doctor writes me that a woman would not allow an operation on her child till the sign of zodiac pointed to the part of the body requiring the operation; also if the umbilical cord is dressed pointing to the northwest the child will not have colic. I know a doctor who kept a record of the sign of the zodiac in which his obstetric cases occurred. This is in full accord with the belief of the middle ages. I suppose everyone here could give some infallible cure for warts learned in childhood. We have seen asafetida on children's necks to prevent contagion. We have seen rings worn to cure rheumatism. I think everyone here could furnish additional evidence of the tenacity to which we hold to these relics of the old paganism.

Now, what moral would I draw from this phase of medical history and this collection of absurdities? I have endeavored to relate that originally man's conception of disease was based on superstition, and treatment was empirical or even fanciful. That all the enlightenment of the centuries has not entirely eradicated the remnants of the old pantheism.

I would make a place for more rational medicine. Let us remember that the workings of all Nature are by law, that disease is only Nature working through law. The law may not be understood, but the law remains. That for every pathological condition there is a definite cause, often not understood, sometimes unknown. It may be a microorganism, a chemical irritant, a lack of proper nourishment of the part affected, some tissue or organ subjected to a strain greater than it can bear, and Nature is exacting the penalty.

But more I would urge that we be rational in treatment. Let us not use some drug or treatment because some doctor or detail man said it was good in this disease, but because we understand the mechanics and action of the treatment. A few years ago there was in our schools an epidemic of therapeutic nihilism. One reason for this was at that time surgery was exalted, and Materia Medica and Therapeautics neglected. Consequently many of us came from school well qualified to tell how to perform hysterectomy, but knowing little of how to differentiate the various headaches for treatment, and many other simple things of which we see fifty to one of indicated hysterectomy. Another reason for this nihilism is that our markets have been flooded with inferior and dishonest drugs, from which we cannot get full physiological action. Let our therapeutic measures, whether by surgery, drugs, treatments, diet or exercises be with reason; to fill some definite indication. Let us not use a prescription, or a vaccine, as the stock vaccine men say, with a dozen ingredients in the hope that one of them will reach the case. If we use a drug let us use it till it fills its indication and no more. Let us always strive to have a reliable preparation so that dosage may be accurate and results more definite. A little observation will convince you that the goods of one manufacturer may require twice the dose of another, and many are absolutely inert. It is well to be cautious in the use of any drug or treatment where we do not understand the physiological action, no matter how well recommended for any disease.

Let our reason ever be faithful and when dealing with things unknown, of which we have many in medicine, and we must proceed on faith, let our faith be reasonable. With a reasonable faith and a faithful reason, with a better education of the masses, and a clearing away of mystery medicine should proceed to a pure science.

ILLINOIS MEDICAL JOURNAL

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State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

APRIL, 1917

Editorials

THE ANNUAL MEETING.

To the Members: Come to Bloomington May 8, 9 and 10 to the state meeting. For many weeks the various committees have been working and planning how they could make your visit to Bloomington one of much profit and pleasure.

The Reception Committee wish to announce that you will find at each railroad station a "free information" bureau for your benefit. It is the intention of this committee to meet all trains with automobiles to take you anywhere you wish to go. All members of this committee will be properly "badged" so you will know whom to ask, and be sure to make your wants known.

Registration: The committee wish to announce that Registration is imperative. Headquarters will be at the Masonic Temple, two blocks east of the Court House, on East Jefferson street. The registration booth will be on the first floor of the Masonic Temple, just inside the main entrance.

Entertainment: At 8 o'clock on Monday night in the Auditorium of the New High School building, there will be a meeting open to the public. There will be good speaking on subjects that will interest all.

Dr. Beck, of Chicago, on "prevention of blindness," and Dr. Tivnen, of Chicago, on "prevention of deafness," will be among the speakers to address this meeting.

Eye, Ear, Nose and Throat Section: On Tuesday morning, May 8, as has been the custom, this section will have a clinic at Brokaw Hospital beginning promptly at 10 o'clock. Ear and eye cases will be operated on at this clinic. Following the clinic there will be a luncheon at the hospital.

In the afternoon there will be a clinic of nose and throat cases at St. Joseph's Hospital.

Tuesday evening at 7 o'clock there will be a banquet at the Bloomington Country Club. Tickets will be $2.50 per plate. There will be music and other entertainment. Dr. Kellogg Speed, of Chicago, recently from the French front, will tell of his experiences. Mr. Robert J. Folonie, our attorney for the State Medical Society, will also address this meeting.

On Wednesday morning at 10 o'clock the ladies will be entertained with an automobile drive, automobile and drivers being furnished by the physicians of Bloomington, who will be accompained by wives of the physicians. This automobile trip will end at the Bloomington Country Club, where a luncheon will be served at 1 o'clock.

There will be various other entertainments provided for the ladies during the afternoon and in the evening they will be given a theatre party, so be sure to bring your wife. We will see to it that she has a good time.

On Wednesday at 10 p. m. in the Illinois Hotel there will be a smoker. Plan to stay over for this. There will be plenty of good things to eat. This committee has provided good music and lively entertainment. We want you to come and make yourself at home.

Reservation: The reservation committee are fully prepared to take care of any and all requests for quarters and will respond promptly to all communications and will gladly make any reservation desired.

You should write early about this so as to facilitate the work of the committee, as it will be difficult to avoid mistakes in a rush.

When you write, specify the number in your party, the probable length of your stay and whether you wish hotel or private family accommodations.

Address all inquiries for reservation to,

Dr. L. B. Cavins,
311 Peoples Bank Bldg., Bloomington, Ill.

BLOOMINGTON 1917 CONVENTION CITY.

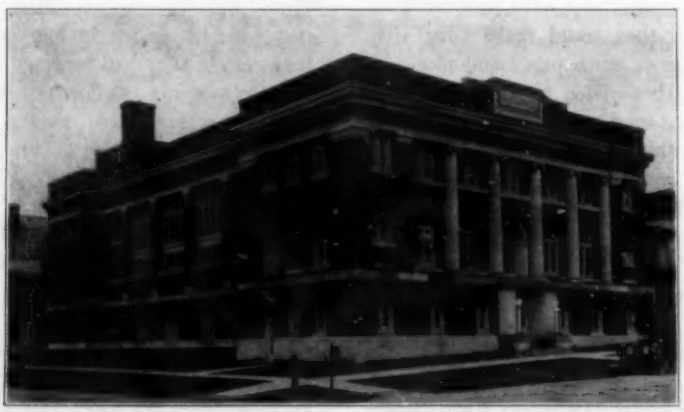
By J. H. Hudson,
Secretary Association of Commerce

The Bloomington Association of Commerce, through its Convention Bureau, extends to the members of the Illinois State Medical Society a most cordial invitation to attend the coming annual meeting to be held in our city on May 8, 9 and 10.

We desire to call your attention to the geographical location of Bloomington, and the easy accessibility to every part of the state. The accompanying illustration shows the railroads leading into Bloomington from fourteen different directions.

It is possible to reach our city from practically one-half of the counties of Illinois without a change of cars, and from three-fourths of the counties with but a single change of cars. Eighty passenger trains arrive and leave Bloomington every twenty-four hours.

Eight well marked automobile trials lead to our city, and the roads are kept in good condi-



MASONIC TEMPLE.

tion during the motor season. Many of the roads are oiled, and you will enjoy an automobile trip to Bloomington. We have splendid hotel accommodations, and on occasions which sometimes tax the capacity of our hotels we are always able to secure first-class accommodations in good private homes.

A delightful program is being planned for your entertainment, and it is the hope of our good people that many hundreds of the Illinois doctors and their ladies will attend this meeting.

Bloomington entertains many conventions each year, and has a reputation for doing things right. Your ladies will enjoy our beautiful drives and parks, our up-to-date stores and the general hospitality of our people.

The medical profession in our city comprises the highest type of men and they are working hard for the success of this meeting.

Our people are looking forward with great pleasure to entertaining the Illinois Medical men and women.

The business sessions will be held in the Masonic Temple, which is one of the finest temples in Illinois.

We will maintain a bureau of information in the lobby of the Temple, where a list of available rooms and accommodations will be kept and information furnished all visitors.

An automobile trip is being arranged for the ladies, and numerous entertainments will be provided insuring a most enjoyable time. The local committee are all at work and you will miss a good time if you stay away.

Come early and stay late.

ILLINOIS STATE MEDICAL SOCIETY

PRELIMINARY PROGRAM.

SIXTY-SEVENTH ANNUAL MEETING.

Bloomington, May 8, 9 and 10, 1917.

SECTIONS ONE AND TWO.

Diabetes—The Initial Fast and Tolerance Testing. E. J. Brown, Decatur.

Experiences With Starvation Treatment in Diabetes. A. C. Croftan, Chicago.

Radium. Albert Woelfel, Chicago.

Cæsarean Sections. H. M. Orr, La Salle.

Constipation, Its Causes and Management. E. E. Wilkinson, Danville.

Late Results of Goiter Operation. E. P. Sloan, Bloomington.

Hemolytic Jaundice. C. A. Elliot, Chicago.

President's Address. W. L. Noble, Chicago.

Oration in Medicine. The Rôle of Syphilis in Internal Medicine. Alfred S. Warthin, Professor of Pathology, University of Michigan, Ann Arbor.

Title to be announced. E. S. Judd, Rochester, Minn.

The Physician and the Proof of Death or Disability for the Insurance Company. C. U. Collins, Peoria.

The Roentgen Findings in Luetic Lesions. E. S. Blaine, Chicago.

Exhaustion in the Acute Psychoses. F. P. Norbury, Jacksonville.

Morbidity Incident to Obscure Hernias. J. L. Wiggins, E. St. Louis.

One Step Further in the Treatment of Acidosis in Children. H. C. Blankmeyer, Springfield.

Operation for Cystocele by the Abdominal Route. W. L. Gray, Champaign.

Symposium

1. Specificity and Non-Specificity of Vaccines. (15 minutes.) D. J. Davis, Chicago.
2. Vaccines for Prophylaxis. (15 minutes.) G. F. Ruediger, La Salle.
3. Vaccines in Internal Medicine. (15 minutes.) L. J. Mix, Chicago.
4. Vaccines in Typhoid Fever. (15 minutes.) S. R. Slaymaker, Chicago.
5. Vaccines in Pertussis. (15 minutes.) H. W. Cheney, Chicago.

Head Injuries With Special Reference to Their Intracranial Complications. T. A. Davis, Chicago.

Oration in Surgery—The Conquest of Cancer. Alexius McGlannan, Baltimore, Md.

Individualization in the Treatment of Surgical Inflammations. E. H. Ochsner, Chicago.

Fracture of the Pelvic Bones and Resulting Injuries to the Urethra and Bladder. H. C. Mitchell, Carbondale.

Lest We Forget, or Crawford W. Long, the First Anesthetist. C. B. Johnson, Champaign.

Surgical Emergencies in the Uro-genital Tract and Their Management. F. Kreissl, Chicago.

Rôle of the Prostate in Acute Gonorrheal Infections. Ben Baird, Galesburg.

The Lower Abdominal Incision. H. T. Byford, Chicago.

Plastic Surgery. Lawrence Ryan, Chicago.

Filariasis From a Surgical Standpoint. H. M. Greaves, Sidney.

An Etiological Study of Arthritis. W. L. Rainey, E. St. Louis.

EYE, EAR, NOSE AND THROAT.

May 8.

The Eye, Ear, Nose and Throat Section will hold clinics for the eye and ear at the Brokaw Hospital, while the nose and throat work will be done at the St. Joseph Hospital. Clinics will start at 10 a. m. and continue until all cases have been disposed of.

Banquet.—At 7 p. m. a banquet will be given for the section at the Country Club, at which special entertainment will be provided. Dr. Kellogg Speed will give an illustrated talk on "Surgical Experiences in France, With Special Reference to Eye, Ear, Nose and Throat." Mr. Robt. J. Folonie, attorney for the Illinois State Medical Society, will give a talk on a subject that will be of interest to all. Price per plate, $2.50.

May 9.

Reading of papers will commence at 9 a. m., Blue Lodge Room of the Masonic Temple. A stereopticon will be provided. Papers limited to 10 minutes and each discussion at two minutes.

Program.

Treatment of Catarrhal Deafness. M. F. Arbuckle, E. St. Louis. Discussion, I. M. Miller, Kewanee.

What the State Can Do to Prevent Blindness. Willis O. Nance, Chicago. Discussion, A. L. Adams, Jacksonville.

The Sub-Mucous Operation. John A. Cavanaugh, Chicago. Discussion, Oliver Tydings, Chicago.

Treatment of Membranous Cataract. Harry Woodruff, Joliet. Discussion, Francis Lane, Chicago.

Operative Procedures on the Nasal Accessory Sinuses. Illustrated. Norval Pierce, Chicago. Discussion, A. H. Andrews, Chicago.

Eye and Ear Work in a General Hospital. Frank Allport, Chicago. Discussion, Arthur M. Corwin, Chicago.

The Management of Tonsillar and Adenoid Hemorrhage. Henry R. Boettcher, Chicago. Discussion, Joseph Z. Bergeron, Chicago.

Primary Mastoiditis With Report of Case. Robert Sonnenschein, Chicago. Discussion, Wright C. Williams, Peoria.

Depressed Nasal Deformity Corrected by Bone Transplantation. L. Ostrom, Rock Island. Discussion, Frank E. Brawley, Chicago.

The Treatment of Vitreous Opacities. Wesley Hamilton Peck, Chicago. Discussion, James W. Dunn, Cairo.

The Importance of After-treatment Following Tonsillectomy. C. F. Burkhardt, Effingham. Discussion, John E. Deal, Springfield.

Optic Nerve Involvement in Tabes and General Paresis on the Line of New Investigation. Geo. F. Suker, Chicago. Discussion, R. C. Matheny, Galesburg.

Some Observations on the Decompression Operation on the Hypopysis by the Nasal Route. Otto J. Stein, Chicago. Discussion, J. Holinger, Chicago.

Management of Malignant Disease of the Upper Respiratory Tract. Illustrated with stereopticon slides. Joseph C. Beck, Chicago. Discussion, S. A. Friedberg, Chicago.

The Kronlein Operation. Edward E. Edmondson, Mt. Vernon. Discussion, Mayer H. Lebensohn, Chicago.

The Use of Bacillus Coli Communis in the Treatment of Tuberculosis of the Larynx. Harry Kahn, Chicago. Discussion, Otto T. Freer, Chicago.

Operation for Anterior Synechia With Report of Cases of Secondary Glaucoma and Staphyloma in Which It Was Used. Chas. G. Darling, Chicago. Discussion, H. Gradle, Chicago.

The Use of Trichloracetic Acid in the Treatment of Atrophic Rhinitis. W. G. Hatch, Rockford. Discussion, Thomas O. Edgar, Dixon.

Presentation of a Device to Immobilize the Head and Eye Lids During Operations on the Eye Ball. E. R. Crossley, Chicago. Discussion, E. H. Garraghan, Chicago.

Diagnosis of Acute Mastoiditis and Indications for Operation. A. E. Sherman, Aurora. Discussion, Cassius M. Craig, Champaign.

SECRETARIES' CONFERENCE.

President's Address. H. B. Henkel, Springfield.

The Organization of Medical Legislative Work in the County Society. F. C. Gale, Pekin.

The Duties and Problems of the Secretary of

an Active County Medical Society. T. G. McLin, Jacksonville.

The Importance of Legislative Work. Don Deal, Springfield.

To be announced. T. D. Doan, Scottville.

HEALTH SUNDAY.

BLOOMINGTON, ILLINOIS, MAY 6, 1917.

The following is a partial list of the churches in Bloomington that will extend their pulpits to the physicians of Illinois, for "Health Sunday," May 6. Each pulpit will be filled with members of the medical profession, who will speak on "Health." A general mass meeting will be held in the evening at the Second Presbyterian Church.

Dr. Arthur M. Corwin (Chicago), First M. E. Church.

Dr. Augustus O'Neill (Chicago), Grace M. E. Church.

Dr. James A. Clark (Chicago), Park M. E. Church.

Dr. C. St. Clair Drake (Springfield), First Christian Church.

Dr. E. B. Coolley (Danville), Second Christian Church.

Dr. Marion K. Bowles (Joliet), Third Christian Church.

Dr. Martin Ritter (Chicago), First Baptist Church.

Dr. Effie Lobdell (Chicago), First Congregational Church.

Dr. William Sadler (Chicago), First United Brethren Church.

Dr. Wm. O. Krohn (Chicago), Second United Brethren Church.

Dr. Bertha Van Hoosen (Chicago), German Methodist Church.

Dr. A. F. Benson (Bishop Hill, Ill.), Swedish Methodist Church.

Dr. Clara P. Seippel (Chicago), First Presbyterian Church.

Dr. John Dill Robertson (Chicago), Second Presbyterian Church.

NORMAL CHURCHES, NORMAL, ILL.

Dr. Lena V. Sadler (Chicago), First Presbyterian Church.

Dr. Edith B. Lowry (St. Charles, Ill.), First M. E. Church.

MASS MEETING.

SECOND PRESBYTERIAN CHURCH.

Sunday Evening, May 6, 1917.

Dr. W. L. Noble, President, Illinois State Medical Society.

Dr. John Dill Robertson.

Dr. Wm. A. Evans.

STATUS OF HOUSE BILL No. 657, ON APRIL 4, 1917.

MEDICAL PRACTICE ACT.

AN ACT TO PROTECT THE PUBLIC AGAINST INCOMPETENT PRACTITIONERS OF THE HEALING ART.

At the meeting of the Judiciary Committee on April 4, 1917, this bill was referred to a subcommittee, consisting of Edward D. Shurtleff of Marengo, Truman A. Snell of Carlinville, Horace W. McDavid of Decatur, Guy Guernsey of Chicago, Ralph E. Church of Evanston, William H. Dieterich of Beardstown, Edwin C. Perkins of Lincoln.

The above named sub-committee of the Judiciary Committee, from 3 o'clock in the afternoon—with a recess for lunch—until 10 o'clock at night, gave their full time to the consideration of this bill, section by section, listening to all the arguments of the doctors, osteopaths, chiropractics and other practitioners of the healing art, and, after some minor amendments, voted to report the bill favorably to the full Judiciary Committee, with recommendation that the Judiciary Committee report the same to the house, recommending its passage.

Drs. C. St. Clair Drake, L. C. Taylor and Don W. Deal, and your president, were all present during this session. We are convinced that if this bill is enacted into law, it will be the most rational and comprehensive medical practice act of any state in the Union, safeguarding the interests and welfare of the people better than the practice acts of any other state, and providing for the gradual improvement in educational qualifications, not only of doctors of medicine and surgery, but also of "all other practitioners." Every doctor in the state should make it his business to urge his representatives in the gen-

eral assembly to support this bill as passed by the Judiciary Committee.

W. L. NOBLE,
President, Illinois State Medical Society.

THE MEDICAL PRACTICE ACT

AN ACT TO PROTECT THE PUBLIC AGAINST INCOMPETENT PRACTITIONERS OF THE HEALING ART

HOUSE BILL NO. 657

What It Does

1. Revises and rewrites the present medical practice act, bringing it in accord with the New Administration Code.

2. Arranges the subjects in a natural and logical order. As it now stands, it is a hodge-podge and jumble, almost impossible to interpret.

3. Preserves the principles of the present act and makes the following substantial changes:

(a) Prohibits a non-medical practitioner from holding himself out to practice any system of healing other than that for which he is licensed; for example, a chiropractor cannot advertise himself as an osteopath, etc.

(b) Recognizes the different systems of non-medical practice and licenses the practitioner to practice the system which he has studied in his school.

(c) Provides educational standards for all practitioners. *Under the present act no educational standards of any kind are fixed for non-medical practitioners.*

(d) Requires the minimum of professional education for non-medical practitioners. *None required at present.*

(e) Requires that non-medical practitioners shall be examined only in those subjects a knowledge of which is absolutely essential to the practice of the drugless healing art, excluding at least four subjects in which the physician and surgeon is examined, viz.: materia medica, therapeutics, surgery and obstetrics.

(f) Extends the reciprocity licensure privilege to all physicians. At the present only those licensed since July 1, 1899, enjoy this privilege.

(g) Defines more definitely than the present act the causes for revocation of a license.

4. It continues in force all unrevoked licenses prior to July 1, 1917.

What Its Purpose Is

1. To afford the public a larger measure of protection against quacks and incompetents.

2. To require all practitioners to hold themselves out to the public for only that which they really are licensed to do.

3. To establish educational standards high enough to assure practitioners of a fair degree of intelligence.

4. To put Illinois abreast of other states in medical registration and licensure.

5. To remove the stigma now attaching to Illinois as "The plague spot of medical registration."

6. To prevent the breaking off of reciprocity arrangements with other states whose standards of medical registration are higher—and that means most of the states.

7. To bring the Medical Practice Act in accord with the new Administration Code.

W. L. NOBLE,
President.

NOBLE M. EBERHARDT,
DON W. DEAL,
E. P. SLOAN,
Legislative Committee.

A REVISION OF THE MEDICAL PRACTICE ACT.

There is before the legislature a bill for the amendment or revision of the Illinois Medical Practice Act. It is known as House Bill 657, and has several provisions which are of especial interest to our members.

For about ten years there has been some effort made to get a reciprocity clause into the Illinois practice act, which would include those physicians who graduated previously to 1898, but up to this time, no progress has been made toward that result. House Bill 657 includes a reciprocity clause for those physicians graduating prior to 1898, and for this reason every physician in Illinois should work for the enactment of this bill. Some of the other states have had a reciprocity clause in their practice act for years, but Illinois has not reciprocated, hence no Illinois physician who graduated before 1898 may practice in other states without examination.

Another important feature of the bill is the requiring of the same preliminary educational qualifications for all cults, healers and other irregular practitioners, as is required of regular physicians, with the exception of midwives, who must have an education equal to that given by the grammar schools.

The bill has other provisions which are desirable, and the profession should see that its representatives are favoring the passage of this law.

MEDICAL DEPARTMENT OF THE UNIVERSITY.

The following appeal from President James of the University of Illinois for money with which to build up the Medical Department of

the University, should be of interest to every member of our Society. If the great state of Illinois is going to maintain a university, and we believe Illinois should, then it should be a university with a standing second to none. If the University of Illinois is going to maintain a medical department, then this medical department should be second to none.

The Medical Department should be a big school, giving the best study course and training in all departments of medicine and surgery. There must eventually be other departments added to this institution. The Medical Department has not the clinical facilities it must have. Research work must be encouraged. The College can fairly well care for its freshman and sophomore classes. The junior and senior classes are not given the advantages necessary for present-day training. There should be added a training for health officers and sanitarians. There must be laboratories built such as do not now exist.

No medical institution worthy of the name can be established and maintained on the fees of students. The day of such medical schools is past. Let Illinois have a medical department, or let it have none.

University of Illinois,
President's Office.
Urbana-Champaign, Ill., March 4, 1917.

To the Members of the State Medical Society:

Friends: You are all aware of the movement to enlist the strength of the state in the support of medical education and research.

I have been twelve years at the University of Illinois. We have put up the question of an appropriation for the benefit of the Medical School of the University four different times. Each time the answer of the legislature has been overwhelmingly favorable.

The first answer showed itself in an appropriation of $386,000 for the support of the medical school. This was passed by an overwhelming majority in both house and senate, but Governor Deneen vetoed the bill.

Subsequently, the legislature appropriated the sum of $60,000 per annum for the support of the Medical School. This was approved by the governor, but subsequently thrown out by the state supreme court on the ground that some amendment to the bill had not been printed.

Finally, four years ago, the legislature defeated, by an overwhelming vote, a motion to prevent the trustees from using any portion of their funds in the support of the Medical School.

Since that time the trustees have begun, in a systematic and thorough way, the development of a College of Medicine upon the same basis as the other colleges of the University.

For the year ending June 30, 1916, the University spent on the Colleges of Medicine and Dentistry and the School of Pharmacy the sum of $213,301, the great bulk of this for the College of Medicine.

We have succeeded in organizing the laboratory years on a very satisfactory basis. The work is done by competent men of good repute. The equipment is fairly satisfactory. The laboratory facilities are becoming better every day.

The attendance at the college, which was over five hundred when we began to improve the school, diminished rapidly under the advancing requirements for admission. When we finally put in our requirements of two years of college work as a preparation for medicine, the freshman class sank from 125 to 12. This, of course, was the common experience of all first-class medical schools in the United States.

I expected that the total attendance would fall to 100 before it began to recuperate, but greatly to our surprise and satisfaction the lowest mark in attendance was reached with a number slightly over 200.

It looks now as if the attendance would grow steadily to four or five hundred, which number would be quite in excess of our possibility of taking care of them at the present time.

The problem before the University now is to put its clinical work in the same fundamental and sound basis as its laboratory work. To do this we need land and buildings and money for the support of the school.

The trustees of the university are asking the legislature for the sum of $500,000 to acquire an adequate site for its clinical plant and to begin the erection of suitable buildings.

I am asking you to do what you can to help persuade the people of the state to ask the legislature to grant us this money.

The members of the legislature are favorably inclined, as they have shown over and over again by their votes, but they naturally wish to know what their constituents think about the policy of developing a strong state medical school. It is up to you and the like of you to furnish this evidence.

Will you not take the trouble to see your senator and representatives personally and present this matter as strongly as you can? If you cannot see them personally, will you not write to them and will you not use your influence to have your county medical society write a letter to the Governor of the State, Honorable Frank O. Lowden, Springfield, Illinois, urging upon him the importance of this subject?

If the state school can get its clinical work in the same relative condition in which its laboratory work is now, I believe it will be in a condition to serve the interests of the medical profession very efficiently, and certainly it will be of the greatest value to every citizen of the state whose health and the health of whose family depends upon the adequate development of medical training and medical research.

Faithfully yours, EDMUND J. JAMES.

CLINICAL MATERIAL WANTED.

The Clinic Committee for the Bloomington meeting wishes clinical material. The following letter is from the committee and it is desirable that the members co-operate:

Eye, Ear, Nose and Throat Section,

ILLINOIS STATE MEDICAL SOCIETY,
May 8, 9 and 10, 1917.

Dear Doctor: As you well know, the State Medical Society meets in Bloomington, May 8-9-10. The Clinic Committee is very anxious to have a large and profitable Eye, Ear, Nose and Throat clinic, and in order to do so we are obliged to call upon the profession of the State to furnish the material.

The following are some of the cases we wish to receive for operation: Chronic mastoids, nasal deformities, sinusitis, tonsils and adenoids, polypi, eye muscles, lids, glaucoma, cataract, tear sac, cleft palate, hair lips and any interesting or unusual cases that you think might add interest to the clinic. We are anxious to make this one of the best and most profitable clinics ever held at our State meetings and we can only realize our ambition with your co-operation.

The clinic cases should all be in the hospital not later than the evening of the 7th. The eye and ear cases will go to the Brokaw Hospital, and the nose, throat and sinus cases to the St. Joseph Hospital.

If you send us any cases, it will facilitate our work greatly if you can let us know by May 1 what and how many you are sending.

The only expense to the patient will be one dollar a day while at the hospital.

These cases will be operated by competent men and will be given the very best of care.

Hoping to have your assistance in making our clinic a success, I am,

Yours fraternally,
Will H. Gardner, M. D.,
Chairman Clinic Committee,
Bloomington, Ill.

ATTENTION, P. & S., U. OF I.

An alumni banquet of the P. & S. medical department of the University of Illinois, is called for Wednesday evening, May 9th, at the Illinois Hotel, at Bloomington, during the coming session of the Illinois State Medical Society.

Those who attended last year's banquet at Champaign need no urging to attend. Good fellowship prevailed, a good time was had, and constructive work was done.

This year's banquet is going to eclipse all previous ones. President James has promised to be present, besides other good friends of the faculty and the alumni.

The speeches which will be short will be followed by musical and other entertainment.

The class of 1892 will have a special table for their 25th anniversary re-union, while special reservations are also made for the classes of '97, '02, '07, and '12. Which class will make most noise remains to be seen.

As a big attendance is expected, make your reservation early, as otherwise you may get left.

If you are not a dead one, get over to Bloomington in May and mix.

Fraternally yours,
Martin M. Ritter,
Chairman, Banquet Committee,
25 East Washington Street,
Chicago, Ill.

NOTICE TO COUNTY SECRETARIES.

Will the secretaries of all the County Societies, who have not previously reported the names of the officers of their society for this year, report them to Dr. W. H. Gilmore, Mount Vernon, Secretary State Society, at once, in order that he may have his records correct, and also to this office, so that we may have the official roster of County Societies up-to-date for publication.

Not infrequently some member thinks he is protected by the medical defense fund when he is not, because of the laxity of his County Secretary. All the County Secretaries should be prompt in reporting to the State Secretary election of officers, payment of dues by members, and other official matters of their Society.

TRI-STATE DISTRICT MEDICAL SOCIETY

The territory covered by the Tri-State District Medical Society this year is composed of sixteen counties in Wisconsin, fifteen in Iowa and fifteen in Illinois. They are as follows:

Wisconsin—Dane, Green, LaFayette, Rock, Iowa, Grant, Columbia, Crawford, Dodge, Jefferson, Richland, Sauk, Walworth, Waukesha, Washington and Vernon.

Iowa—Dubuque, Cedar, Blackhawk, Muscatine, Clinton, Scott, Buchanan, Jones, Fayette, Linn, Bremer, Jackson, Johnson, Delaware and Clayton.

Illinois—Boone, Bureau, Carroll, DeKalb, Henry, Jo Daviess, Kane, La Salle, Lee, McHenry, Ogle, Rock Island, Stephenson, Whiteside and Winnebago.

The honorary members of the Advisory Board are the presidents and secretaries of the three state medical societies and the editors of the state journals. The active members are the councilors, presidents and secretaries of the county societies within the districts of the organization.

The annual scientific and clinical meeting will be held this year at Dubuque, Iowa. The date has not yet been set.

Last year's meeting was held at Freeport and consisted of nine counties in Wisconsin, nine in Illinois and five in Iowa. On account of the large attendance and the enthusiasm displayed at this meeting, it was decided to change the name from "Confederation of County Medical Societies" to "Tri-State District Medical Society" and enlarge the territory to a considerable extent.

This organization is primarily a confederation of county medical societies banded together for a true fraternal and professional spirit as well as scientific and research work. We feel that this association is destined to become one of the finest medical organizations in the middle west.

DR. W. B. PECK, *President*,
Freeport, Ill.
DR. N. C. PHILLIPS, *Secretary*,
Freeport, Ill.

NATIONAL INVESTIGATION BUREAU

The woes of the widow who, left to assume unaccustomed responsibilities, finds her affairs in the hands of unprincipled lawyers, have been many times impressed upon insurance men. Many times there arise legitimate controversies over the meaning of policies, particularly of accident insurance, as applied to the particular circumstances surrounding the death of the insured, and such litigation is invariably expensive to the widow. The adjustment of such cases, in fact of all contested cases, without recourse to litigation unless absolutely necessary, is the basis of the work of the National Investigation Bureau, Inc., of Baltimore, of which Dr. W. E. Magruder is president and medical director. Since the majority of such contests hinge around medical questions the bureau has arranged for the advice and assistance of some of the foremost medical, surgical and pathological men in the country. The bureau will also have the services of some of the best lawyers, after all other methods of adjustment have failed. The high regard in which Dr. Magruder is held is evidenced by the action of a number of insurance men, who have voluntarily directed that their insurance policies be handled, after their death, by this bureau. Others, preferring not to risk having their possible claim for accidental death fall in the hands of shyster lawyers or zealous adjusters, have done likewise. Thus they have guarded against the possibility of having the least favorable construction placed upon policy provisions which are obscurely worded. In view of his eleven years of experience in the business of adjusting, Dr. Magruder's recent announcement that he will hereafter devote himself entirely to adjusting for the insured is a highly important and interesting one, especially to state insurance departments, whose services are being asked in cases of this kind on increasingly numerous occasions.—*From Weekly Underwriter, New York, December 16, 1916.*

THE MEDICAL OFFICERS' RESERVE CORPS

The Medical Officers' Reserve Corps was organized under the National Defense Act of June 3, 1916, for the purpose of securing a reserve of officers available as temporary officers in the regular army in time of war.

This service would be in the nature of hospital practice in a large city with the addition of the medico-military problems to be encountered in army life. Arrangements have been made by the War Department to provide for the instruction of all officers of the Medical Officers Reserve Corps in their purely military duties. This instruction will consist of lectures and correspondence courses, and at some time during the summer months special military instruction of from two to four weeks. This latter will be held at the regular summer training camps.

All physicians in good standing and between the ages of twenty-one and forty-five are eligible for commissions in this corps. All persons desiring commissions in the Medical Officers Reserve Corps will write to the Surgeon-General U. S. Army, Washington, requesting permission to appear before a board for the purpose of being examined for a commission in this corps. A reply will be received from the Surgeon-General directing the applicant to appear at a certain time and place to be examined mentally and physically for entrance into the corps. The physical examination is very thorough, and no person with pathological defects will be considered. The mental examination is not severe, and physicians in good standing in their communities will not find any difficulty in passing the same. After this examination has been successfully completed the applicant will be commissioned a first lieutenant in the Medical Officers' Reserve Corps. After five years the reserve officer may be recommissioned in the same or the next higher grade after taking another examination. A reserve officer can be promoted to the rank of major after a specified length of service in the

reserve and after passing the prescribed examination. In time of war reserve officers called into the service will take rank according to their commissions and will be entitled to pay and allowances of corresponding grades of the regular medical corps. No reserve officer will be called into active service in time of peace without his consent, but if he does serve, will receive the pay and allowances of a first lieutenant of the regular corps.

Correspondence

WAR DEPARTMENT,

OFFICE OF SURGEON GENERAL, WASHINGTON.

March 3, 1917.

To the Editor: Should the country ever be engaged in war, the Medical Department of the Army in calling Reserve officers to the colors, wishes to cause as little hardship and sacrifice to the Reserve medical officers as may be consistent with the needs of the country. With this end in view, the Department desires that you bring to the attention of the profession at large the necessity of the city, county and state medical societies organizing for the purpose of taking care of the practices of the officers of the Reserve who respond to a call for service. In England this plan has proven of great benefit. The idea of the Department is that the profession should organize upon a similar basis.

For example, should Dr. Jones be called to the colors, the local medical society, through its members, would take care of his practice during his absence. Upon relief from active duty his practice would be returned to him intact. Such a plan will cause no unnecessary hardship upon the officer responding to a call for service; while the absence of such plan would penalize the officer who gives his service to the country in a crisis. The Department appeals to the patriotism of the profession to protect the interest of those of the profession who may be called to duty in war.

For the Surgeon General.

Sincerely,
Robt. E. Noble,
Major, Medical Corps, U. S. Army.

DO YOU KNOW THAT

A little cough often ends in a large coffin?

Bodily vigor protects against colds?

Careless sneezing, coughing, spitting spread colds?

Open air exercise cures colds?

Colds sometimes get well in spite of the excessive use of alcoholic beverages?

Overheated, air-tight rooms beget colds?

Neglected colds often forerun pneumonia?

Persistent, oft repeated colds, indicate bodily weakness?

Society Proceedings

COOK COUNTY

Joint Meeting of the Chicago Medical Society and the Chicago Urological Society, February 21, 1917.

The President, Dr. A. Augustus O'Neill, in the Chair.

OPERATIVE TECHNIC OF SUPRAPUBIC PROSTATECTOMY.

Dr. Irvin S. Koll said that the technic suggested by Kolischer several years ago has given him as nearly perfect results as he feels it is possible to obtain. The preoperative condition of the patient, especially the condition of the renal function, must always be considered. One should know how much urine is excreted in the 24 hours, the total amount of urea, and whether there are albumin and casts. The cardiovascular system should also be investigated as a guide in the general care of the patient and in the selection of an anesthetic. The author considers the two-step operation the one of choice, preliminary cystotomy being done ten days to three weeks before the gland is removed. He mentioned three axioms in regard to peeling out the gland: first, see what you are doing; second, do not tear adhesions or fascial bands; third, secure careful and non-mechanical hemostasis. The incision should be generous, as a good view of the interior of the bladder is essential. The incision should be made into the most prominent part of the projecting gland with a knife, not with the finger nail.

PERINEAL PROSTATECTOMY

Dr. Weller Van Hook described a method of performing perineal prostatectomy which he originated in 1903. The method is: place the patient in the exaggerated lithotomy position, with the hips elevated about one and a half inches, and with a grooved sound in the bladder. Make a one-inch transverse incision one-half inch in front of the anal margin, carrying the wound through the centrum tendineum. Separate the muscles in the median line with the finger tip and palpate the sound as it traverses the membranous urethra. Open the latter by a longitudinal incision one inch long, pass the finger into the bladder, remov-

ing the sound. Explore the bladder. Remove the finger from the urethra and penetrate the prostatic lateral lobes with the finger tip, enucleating the masses of the gland. Pack each wound in the prostate with a strip of gauze. Press a half-inch rubber tube into the bladder and suture it to the skin. Pass very large sounds about one week later. The operation requires from 4 to 20 minutes under gas anesthesia. It gives fullest drainage at once; it does no serious damage to the perineum; it does no injury to the bladder; it gives rapid healing, with minimum liability to fistulæ and to loss of function. The author prefers his results by this method to those obtained by the suprapubic route.

RATIONAL OPERATION FOR PROSTATIC ABSCESS.

Dr. J. S. Eisenstaedt cited two cases of prostatic abscess, one of which recurred after a period of six years, and which found exit through the perineum both times. He emphasized the point that while prostatic abscess is usually dependent upon infection with the gonococcus, subsequent to a posterior urethritis, certain cases occur in which the mode of entrance of the infecting organism, usually the staphylococcus, cannot be determined and still other cases exist not dependent upon inflammation or infection in the genito-urinary tract, but consequent upon remote infections, as furunculosis and carbuncle. Dr. Eisenstaedt recommended as a surgical procedure, with the fewest drawbacks, a modification of the incision recommended by Dittel, Thompson and Zucherkandl. The advantage of the operation is the preservation of the central tendon of the perineum, which structure is cut across in the operations suggested by other authors.

Scientific Meeting, February 28, 1917.

Dr. Arthur W. Stillians read a paper on (a) THE DIAGNOSTIC VALUE OF THE SPIROCHETAE, and (b) THE CLINICAL VALUE OF THE LUETIN TEST. The chief value of the examination for spirochete lies in the clinching by this means of the diagnosis of the chancre. Since the discovery of the organism by Schaudinn in 1905, it has not been necessary to wait for the secondary symptoms to make the diagnosis absolutely certain before subjecting the patient to the necessary treatment.

As to the clinical value of the luetin test, Dr. Stillians said that since 1911, when Noguchi demonstrated before the Chicago Medical Society his cultures of the spirochetae pallida and the cutaneous reaction resulting from the intradermal injection of the emulsion of the killed spirochete, reports have come from all over the world corroborating the diagnostic efficiency of the test. In a series of 344 cases which he made and reported in collaboration with Dr. W. A. Pusey, they obtained only 20 per cent. positive reactions in 104 secondary cases, 18 per cent. positive in 33 latent cases, and none in 7 cases in the primary stage.

In a paper on the NON-SPECIFIC FACTOR IN THE LUETIN REACTION Dr. J. H. Stokes stated that his own interest in the non-specificity of the reaction was aroused by finding that its clinical course could be imitated in normal persons not taking iodides, after they had been rendered sensitive by the intradermal injection of emulsions of homologous proteins (emulsions of skin) by using intradermally simply a 0.5 per cent, suspension of agar, one of the supposed inactive ingredients of luetin in physiological saline solution. The action of agar, in contact with serum, was apparently overlooked by Noguchi and other workers with leutin, but is known through recent work in the colloidal chemistry of anaphylactic phenomena to be that of an absorbent. Its action liberates an intensely toxic produce, or anaphylatoxine, whose source, whether by proteolysis or otherwise, is the serum itself.

CLINICAL VALUE OF THE BLOOD WASSERMANN REACTION.

Dr. Louis E. Schmidt said that an authoritative estimate of the value of the blood Wassermann reaction should comprise: 1. The stage of syphilis. 2. The clinical manifestations. 3. Whether or not treated and how treated. 4. The character of the reaction. 5. Any information which might be of value. He believes the value of the blood Wassermann reaction in secondary syphilis to be almost 100 per cent., but that a certain amount of treatment in individual cases lessens this. All authorities practically agree that in secondary syphilis the blood Wassermann reaction in treated and untreated cases would be between 25 and 100 per cent. In congenital syphilis, untreated statistics show 97 to 100 per cent. blood Wassermann reaction. It is certainly over 90 per cent. in the infantile type of hereditary syphilis, at least in untreated cases.

SALVARSAN AND NEOSALVARSAN THERAPY.

Dr. Oliver S. Ormsby reviewed the history of salvarsan therapy from its introduction to date. In a review of many hundreds of injections personally observed, together with those of others, it was apparent that different lots of salvarsan vary in degrees of toxicity. Late reactions are due to the deleterious action of the drug itself on the liver, kidneys, and the central nervous system. A review of the work in all the large clinics of the world show that salvarsan and mercury are employed by most in courses, each course ranging from 4 to 8 injections of salvarsan given at intervals of from 7 to 14 days, together with from 10 to 20 injections of mercury; the number of the courses and the size of dose depending upon sex, general condition of the patient, and the stage of the disease.

CHANGES IN THE SPINAL FLUID AND INTRASPINAL THERAPY ON SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.

Dr. George W. Hall pointed out that the different methods of intraspinal medication, as employed during

the past two or three years, are: (1) The Swift-Ellis method of injecting salvarsanized serum into the spinal canal; (2) Ogilvie's modification of this method by adding salvarsan to the patient's serum; (3) the use of mercurialized serum by adding mercury to the patient's serum; (4) the intraspinal injection of mercury, using the patient's serum as a vehicle; (5) the intraspinal injection of neosalvarsan, using the patient's spinal fluid as a vehicle. Swift states in the Swift-Ellis method, 12 to 20 cc. of serum represents about 0.12 to 0.2 mg. of salvarsan. By the use of the last method mentioned, 1 to 3 mg. have been employed with safety. Favorable clinical reports have been recorded by all of these methods, although uniform reports have not been made concerning the treatment of general paresis.

THE CURE OF SYPHILIS.

Dr. William T. Belfield said a revision of the current treatment of syphilis along the following lines seemed desirable: 1. Let us begin with the frank confession that we have as yet no means for determining when a patient is cured. 2. If we admit that at the end of 2 or 3 years treatment we are still unable to distinguish the cured from the apparently cured, two courses are open to us, the easy and usual custom is to tell them all that they are cured. The other course open when our patient is apparently cured is to explain to him frankly that we cannot promise permanent freedom from the symptoms; that his present immunity may be transitory; that if he would "play safe" he should renew this immunity by repeating the medication at prescribed intervals.

Scientific Meeting, March 7, 1917.

TUBERCULOSIS NIGHT

Dr. Frederick Cleveland Test read a paper on "The Crippled Child." From available statistics anterior poliomyelitis seems to have furnished some 10 per cent. of the deformities of childhood in Chicago, and a census now under way among the crippled children attending Chicago schools indicates that fully one-third of them owe their deformity to this disease, indicating that mental disturbances do not keep pace with the muscular, as is the case with the paralyses of cerebral origin, which furnish 2 or 3 per cent. of all cases of deformity.

Dr. Charles P. Caldwell spoke of the tuberculosis sanitarium. At the sanitarium there are about 728 patients; it is divided into two parts—the infirmary and cottages. All patients are placed in the infirmary for a certain lengh of time, according to the progress of their disease, and when they are able to resume some activity are placed in the cottages and go to the public service building for their meals, being returned to the infirmary if they do not do well.

Dr. John Dill Robertson spoke on "The City Problem." The more he studied tuberculosis, and the more he saw of it, the more he was inclined to believe it is a disease of childhood, and the sad part of the work in Chicago was the fact they could not remove the child from the parent who was infecting it.

Scientific Meeting, March 14, 1917.

In a paper on "The Tonsil as a Portal of Entry in Tuberculosis of the Cervical Glands" Dr. Walter B. Metcalf considered only the palatine tonsil and gave its average size in the adult as about 20 mm. in height, 15 mm. in width and 12 mm. in thickness. He reviewed the results obtained by 30 different investigators, showing that the tonsils frequently contain tubercle bacilli, that the tubercle bacilli may penetrate the tonsillar membrane wtihout leaving any mark, and that in a very large percentage of cases of tuberculous lymph adenitis the tonsils are also infected.

Dr. John A. Robison spoke on "A Consideration of the Administration Code of Illinois as Relating to Public Health and the Practice of Medicine." The Administrative Code entirely divorced the examination and licensing of professions, trades and occupations, that function now being placed under the control of the Department of Registration and Education. It will place the administration of all health functions in the hands of one man, the Director of Public Health, but he will be assisted by a board of public health advisers consisting of five persons.

J. V. Fowler, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY

A regular meeting was held Monday, October 16, 1916, with the President, Dr. William E. Gamble, in the Chair.

RETINITIS PROLIFERANS.

Dr. E. K. Findlay reported a case of retinitis proliferans and exhibited the patient, demonstrating the progress within one year.

DISCUSSION.

Dr. Harry S. Gradle asked Dr. Findlay whether, at any time, he had noticed the presence of hemorrhages either into the retina or vitreous.

Dr. Findlay replied that the hemorrhages were only in the retina; that large areas of hemorrhages were seen around the disc. There were also hemorrhagic masses in the vitreous.

Dr. Gradle thought the case should be classed as one of exudative retinitis rather than retinitis proliferans. He thought it was Koch who pointed out that retinitis proliferans is due to the proliferation of the glia, whereas, in the exudative form there is connective tissue and organized exudate. He believed it was Nogouchi who claimed that this form of exudative retinitis is either the result of hemorrhages into the retina or the vitreous impinges upon the disc and from the disc there arise new strands of connective tissue in the retina itself; consequently, he thought the case reported by Dr. Findlay should be classed as exudative retinitis rather than retinitis proliferans.

Dr. Findlay said he preferred the term retinitis hemorrhagica-hyperplastica, which covers quite the same thing as Dr. Gradle had referred to. The condition was entirely due to hemorrhages. There was a proliferation of Mueller's fiberous cell and the formation of connective tissue.

The interest in the case to him was largely on account of the difficulty in finding any causal factor in a man in such a healthy condition as the patient was.

Dr. William E. Gamble had been observing this case in the last year and his judgment is that the connective tissue in the eye was not the result of hemorrhages. There was too much connective tissue and too little hemorrhage, and then it did not seem to spread from the hemorrhagic areas or exudate plexuses.

REPORT OF A CASE OF JUVENILE TABOPARESIS WITH OPTIC ATROPHY, TREATED BY INJECTIONS OF MERCURY INTO THE LATERAL VENTRICLE.

Dr. George F. Suker reported this case: The patient is Miss P. F., aged 16, who contracted lues from her father while a baby but a few months old. Father contracted an active lues a short time prior. Mother is free as a Wassermann and spinal fluid were negative.

The girl grew up, having had the usual sicknesses of childhood, and apparently gave no symptoms of lues to speak of, at least, the mother said the child was well until about the age of 15. Has menstrated but twice. Has a myopia of 4 diopters in each eye. Is rather small for her age, though both parents are tall. Gives no evidences of any pituitary disturbances; x-ray plates negative.

At the age of 15 she began losing sight rapidly, became nervous and irritable, forgetful and showed difficulty in walking; very dizzy, and had very severe headaches and more or less lancinating pains.

A complete neurological examination by Dr. L. Harrison Mettler proved her to be a juvenile taboparetic, giving all the classical symptoms.

The eye findings are as follows: 1. Maximumly dilated irides. 2. Moderate degree of divergent strabismus. 3. Complete optic atrophy in left eye (primary). 4. Rapidly advancing optic atrophy in right (primary). 5. Four diopters myopia in each eye; this gave 12/60 vision in right eye. 6. The field for form and color, just prior to operation, is as per charts.

On May 29, the right lateral ventricle was tapped and 10 cc. of fluid slowly withdrawn; 5 cc. of this with 1/100 gr. of bichloride of mercury were slowly reinjected. (Luer syringe used.)

No marked reaction followed this injection; operation under general anesthetic.

After 48 hours the headaches disappeared and have not returned up to date. The dizziness rapidly improved. General conditions satisfactory. Second injection (under local anesthesia ten days later—this time 1/75 gr. mercury in ½ of the amount of ventricular fluid (8 cc.) withdrawn as reinjected. Reaction rather pronounced within 24 hours, *i.e.*, headache and dizziness; this lasted but for 12 hours.

Third injection two weeks after the second and this time 1/50 gr. mercury was injected. Reaction more pronounced than after second, but the continuous application of an ice bag to the head allayed all symptoms.

Fourth injection ten days after third and 1/25 gr. mercury was used. Reaction prompt and rather severe, but controlled as before.

Up to date, the vision in right eye is the same (12/60) and the field larger (see chart) and more regular than before injections were made.

The patient is greatly improved in every respect and after five months vision has not decreased any, though before injections were made vision rapidly fell to 12/60.

It must also be stated that inunctions of mercury have been consistently used in large doses since the last injection.

One cannot expect a restoration of nerve fibers in an optic atrophy, but if the atrophic process can be checked, some vision can be saved, much has been accomplished.

One interesting feature in the case is the dilatation of the irides instead of an Argyll-Robertson pupil. The mother said the pupils were large for a number of years before she began to complain of headaches and dizziness, etc.

Following the lateral ventricle injection, the reactions sometimes are very pronounced, within 12 to 24 hours after, necessitating a spinal puncture and the withdrawal of about 10-15 cc. of the fluid. The reactions may manifest themselves as: terrific headaches, nausea, extreme dizziness or more or less stupor. If the application of the ice cap to the head does not mitigate the symptoms promptly, then resort to spinal puncture.

DISCUSSION.

Dr. Francis Lane asked Dr. Suker whether he regarded this as a primary ascending or descending atrophy of the optic nerve.

Dr. Suker said the question of whether it was a primary ascending or descending atrophy of the optic nerve was very pertinent. Speaking of primary optic atrophy, we have it starting in the retina and ascending. If we accept the presence of the spirochete, although not yet demonstrated, as being present in the nerve fibers posterior to the optic nerve itself, then we must look upon the spirochete as setting up a local low-grade inflammatory condition, and it might be a descending instead of an ascending optic atrophy.

There was no doubt in his mind that the direct injection of mercurial preparations or salvarsan, or neosalvarsan had a definite field of value. This was not the only case he had had under his care. He recalled three cases in which the patients did not lose any more vision than at the time he first observed them. The oldest one was practically nine months. In nine months optic atrophy usually showed a marked advance, and if one could check it for nine months it might be checked for a much longer period.

TUBERCULOSIS AS A CAUSE OF IRITIS IN EIGHT CASES.

Drs. E. V. L. Brown and Ernest E. Irons stated that these cases were encountered during an intensive study of the etiology of 100 cases of iritis (J. A. M. A., June 10, 1916).

In addition to these eight cases, clinical evidence of the presence of tuberculosis, either inactive or active, was found in 26 others of the 100 cases. This evidence varied in extent and nature in the several cases; in 24 a rise of fever of more than one degree, either alone or accompanied by local and general signs of tuberculin reaction, followed the injection of tuberculin; in one there were signs of cavity formation and infiltration, together with Roentgenographic findings and an old history of tubercle bacilli in the sputum; another patient died later of pulmonary tuberculosis and diabetes. In all these 26 cases careful studies showed other infectious processes which appeared to the writers to stand in closer etiologic relation with the iritis than did the tuberculous infection. They warn strongly against basing a diagnosis of tuberculosis on incomplete clinical information or on placing great reliance on the presence or absence or a tuberculin reaction unsupported

by collateral evidences. They pointed out that in some of the 100 cases there were several infections occurring together, such as tuberculosis, syphilis, gonococcal or other pyogenic infections, in which careful investigation failed to demonstrate to their satisfaction which one of the possible causes was responsible for the disease in the eye. On the theory of probabilities, one or more of these cases may have been due to tuberculosis, but should not be included with the eight cases described, in which the evidence seemed fairly clear cut.

Case 29. Machinist, aged 23. Active plastic iritis; active pulmonary tuberculosis. Roughness of breath sounds; dullness and fine rales over the upper lobe of the left lung both anteriorly and posteriorly; hemoptysis; tubercle bacilli found in the sputum. Lues denied. Gonorrhea three years ago.

Case 23. Housewife, aged 35; recurrent plastic iridocyclitis (fourth attack). Inactive pulmonary tuberculosis. Harsh right apex; relative slight dullness; x-ray findings "similar to pulmonary tuberculosis"; temperature of 100 degrees 20 hours after subcutaneous injection of 3 milligrams of O. T.; repeated phlyctenula-like effluorescences about the limbus during tuberculin (BE) treatment. Repeated Wassermann and Neisserian complement fixation tests negative. Teeth, tonsils and sinuses negative.

Case 30. J. R., laborer, aged 24. Iritis peracta, secondary cataract, inactive pulmonary tuberculosis. Breadth sounds harsh and prolonged over the right apex, and left subscapular region; x-rays "quite characteristic of pulmonary tuberculosis"; ten weeks persistently subnormal temperature; 5 mg. O.T. negative. Teeth, tonsils, sinuses, blood, Wassermann and Neisserian tests negative.

Case 70. D. S., laborer, aged 38; recurrent active plastic iridocyclitis (and hemorrhagic retinitis and old choroiditis). Present attack incited 9 days ago by trauma—eye struck by a small piece of iron. Inactive pulmonary tuberculosis. Voice sounds increased and piping rales heard posteriorly in the right chest at the apex of the lower lobe; temperature of 103 degrees thirty hours after 5 mg. O. T. Teeth, tonsils and sinuses negative. Wassermann and Neisserian tests negative. (History of an old gonorrhea.)

Case 71. Nurse, aged 38. Recurrent "serous" iridocyclitis with corneal lesions suggesting phlyctenular disease and old choroiditis. Inactive pulmonary tuberculosis. Occasionally rale heard at right apex and a slight rise (99.4 degrees) after 3 mg. O.T. twenty months later; "daily rise in temperature to 99.4 degrees enlarged bronchial glands and evidences of inactive lesions at both apices." (Dr. H. H. Stark, El Paso.) Teeth, tonsils, sinuses and blood, Wassermann and Neisserian tests negative.

Case 81. School girl, aged 18; chronic "serous" iridocylcitis, with old anterior choroiditis. Inactive pulmonary tuberculosis. Right apex breath and voice sounds decreased; bronchial breathing increased posteriorly down to mid-scapular region on the right side; x-rays show fan-like radiation shadows, more pronounced in the upper right lung, with increased shadows at each hilus; loss of 13/15 pounds in weight; a persistent daily rise in temperature of 5 to 1.5 degrees 3 mg. O.T.; gave 99.8 degrees at the 16th hour. Tonsils, teeth, sinuses and Wassermann and Neisserian tests negative.

Case 40. Male, aged 30; chronic recurrent plastic iridocylcitis, with old choroiditis. Repeated examination of the lungs showed no demonstrable disease. Well-marked general and temperature reaction (101 degrees) to 3 mg. O.T. on the second day. Definite healing of the uveitis following tuberculin (BE.) treatment. Teeth, tonsils, sinuses, Niesserian and Wassermann blood tests negative.

Case 52. Locomotive fireman, aged 29. Chronic nodular iridocyclyitis, incited by strongly irritating medicine used in the eye by mistake. Repeated examination of the lungs showed no demonstrable disease; 0.5 mg. O.T. gave 100.8 degrees at the 48th hour and 2 mg. gave 100 degrees at the 24th hour. Teeth, tonsils, sinuses and Wassermann and Neisserian blood tests negative.

DISCUSSION.

Dr. George F. Suker said it was a question whether or not one was able to demonstrate the presence of tubercle bacilli either in the iris itself, or whether one looked upon the iritis as being caused by the presence of the tubercle bacillus, or by a toxin elaborated by the presence of the tubercle bacillus elsewhere in the body, being practically a transferred infection. If this was the case, not only the local condition itself must be fully looked into, but the general condition of the patient needed more attention.

Dr. Brown stated that as to whether the iritis was of a toxic or bacterial nature, he did not think there was any particular consensus of opinion, and there was no particular evidence of any value to show whether the iris might not contain tubercle bacilli, but men working in the bacteriological departments seemed to emphasize the presence of organisms or the toxins of organisms.

Dr. William H. Wilder asked whether traumatism to the eye in a tuberculous subject would have the tendency to cause a lesion that might ultimately become tuberculous.

Dr. Brown replied that three cases were of that type. The 8 cases reported constituted a small percentage of 100 cases. They got tubercular reactions in something like 40 of the cases.

Dr. Willis O. Nance said that in the etiology of 100 cases he had noticed in over one-third of them there were dental or tonsillar troubles, and about one-quarter were due to syphilis. He would like the essayist to say something further about this.

Dr. Brown said that 98 out of 100 cases they had Wassermann's made both at the Presbyterian and Cook County hospitals and where the reports conflicted they were done over again. They eventually got the men in the two laboratories to agree on the same technic. Of 17 cases examined 9 of them had positive Wassermann's, and 8 of them had positive gonococcal complement fixations. A lot of them had tuberculous infections; many of them had 3 to 5 infections.

Dr. Nance said he was interested in the dental and tonsillar aspect of these cases and would like to know more about them.

Dr. Brown said the dental cases were based largely on alveolar abscesses, and not particularly upon pyorrhea. Some therapeutic observations were made in connection with the diagnotic points. Attention was given to the dental aspect of these cases by Dr. Potts.

In some cases the ciliary injection disappeared and a few days later returned with secondary glaucoma, and tension dropped very materially as the result of extracting teeth. The tonsillar cases were seen and attended to by Drs. Shambaugh, Friedberg and Sonnonschein.

Dr. Francis Lane recalled a very difficult case of tuber-

culous irido-cyclitis following a non-perforating injury of the eye which he and Dr. Dodd reported to the American Medical Association in 1911. In this case a typical giant cell growth was found in the ciliary body in which typical tubercle bacilli were found stained in the tissue. Five hundred sections were made of the anterior segment from which 30 or 40 showed typical miliary tuberculous areas.

Dr. Robert Blue asked Dr. Brown whether he had encountered any cases of rheumatic iritis, or whether these were included under the dental or some other heading?

Dr. Brown said that rheumatism was not considered a very illuminating or prolific cause of iritis. Rheumatic iritis was given a hard blow by Dr. de Schweinitz in 1911, and in all these cases there was some form of infection.

THE USE OF EYES OF KITTENS IN OPHTHALMIC OPERATIVE TEACHING.

Dr. William A. Fisher stated that pigs and rabbits' eyes had been mentioned and could be obtained readily in large quantities for teaching purposes, but the former did not offer much to the student, because, as obtained commercially, they were delivered enucleated, thus precluding practice upon the muscles, and since they had such a large and thick cornea they were quite impractical for corneal work. The iris was so thick that operations upon it were likewise very unsatisfactory, but with all these objections the eye of the pig was universally used for teaching operations upon the eyeball.

For work upon the eyeball proper, the eyes of kittens were far superior for all purposes to all others mentioned, and when once used they would never be discarded. As in the case of other animals, the kittens should be killed before beginning work, after having been dusted lightly with powdered naphthalene to dispose of any vermin present. The killing might be most conveniently and cheaply done by the injection of one-half grain of strychnin sulphate intrapleurally.

Any student could, with one hundred kittens, do as much operative work as the busiest oculist in many years. One hundred kittens (two hundred eyes), would furnish material for four hundred muscle operations, two hundred enucleations, two hundred iridectomies, and two hundred cataract extractions, making in all one thousand operations. If the student used this or twice this amount of material, he could not fail to bring to his operating room an experience and confidence that could be secured in no other way.

The author drew the following conclusion: 1. Students could not become competent to do surgical operations upon the eye by watching others. 2. The eyes of four-weeks'-old kittens were better for teaching ophthalmic operations than were those of other animals. 3. The material was not difficult to obtain. 4. Any student who had prepared himself for ophthalmology could get an operative technic in this manner that was not equalled by any other.

DETACHMENT OF THE RETINA.

Dr. Hughes reported a case of detachment of the retina. The patient was a man, 40 years of age, whom he saw for the first time a week ago. When first seen, without dilatation of the pupil, one could see a grayish mass protruding through in the line of pigment, and with dilatation of the pupil one could observe the mass extending well out. With vision about the temporal side of the retina he could distinguish things fairly well. The speaker did not attempt to get distinct acuity of vision, but patient complained of limitation of vision.

The history was of no particular importance. Two weeks before this time patient had an accident which resulted in a foreign body penetrating the eye, he having been hit in the eye by a hot piece of iron flying from a drill. He had no subjective sensation referable to the eye, and complained of no loss of vision up to that time. His general health was fairly good. Patient is of medium size and sallow in color. On examination of the eye one can see where the detachment of the retina begins around the macula, extending nearly over to the disc and becoming elevated about 70 diopters.

He would like to know from the members the true nature of the case.

Dr. William A. Fisher considered the case one of sarcoma of the choroid, and if it were his case he would explain to the man that he had a growth of some kind in his eye; that he would cocainize the eye and draw off the fluid, and if fluid could not be withdrawn he would not hesitate to enucleate the eye.

CHICAGO ROENTGEN SOCIETY.

The regular monthly meeting was held at the Graduate School of Medicine, 25 E. Washington St., February 9, 1917.

The first number on the program consisted of the presentation of interesting case reports with slides and plates.

Dr. Emil Beck presented a case of abdominal pregnancy.

Dr. Case showed slides of a case of carcinoma of sigmoid in which a previous examination was done by another Roentgenologist who stated all the trouble was in the right lower quadrant.

Mr. Montiford Morrison spoke next on experiments now being conducted by A. W. Hull on the "X-Ray Spectrum of Tungsten." These investigations intend to determine the exact nature of X-Radiation.

Dr. Emil G. Beck concluded the evening program by a paper on "Differential Diagnosis of Bone Lesions After Healing Has Taken Place," an abstract of which is appended.

DIFFERENTIAL DIAGNOSIS OF BONE LESIONS AFTER HEALING HAS TAKEN PLACE.

Dr. Beck illustrated by means of stereo-roentgenograms typical changes which take place in bone during the disease and after the disease has healed out. The stereoscopic method of diagnosis of these post-tubercular, post-syphilitic, and post-typhoid lesions of bone shows in striking contrast the lesions of acute or active disease. By this method he can obviate or eliminate those cases of bone lesions which have healed out and leave characteristic marks in the bone and tissues surrounding the bone which give positive proof that the disease has healed out and nothing more is to be done.

He compares it to the scar tissue in soft structures, such as the post-tubercular scars in the lung.

Since he is preparing a very exhaustive paper on this subject, a detailed description is omitted at this time.

JAMES T. CASE, President.
M. J. HUBENY, Secretary.

IROQUOIS-FORD MEDICAL SOCIETY.

Paxton, Ill., March 7, 1917.

The regular quarterly meeting of the Iroquois Ford Medical Society was held at Paxton, Ill., March 6, 1917.

Leon W. Kelso, Paxton, and Darwin Schett, Buckley, were elected to membership.

The secretary made a report on a mail vote taken by the membership upon the proposition of the advisability of dividing the society into two societies, one for each county. The vote stood 12 for and 30 against. Another vote taken in the same way upon the proposition of raising fees for visits stood 31 for and 11 against. Those present voted unanimously to make this effective at once.

S. S. Fuller resigned as secretary-treasurer, as he expects to remove to Riverside, Ill., about April 1. W. L. Cottingham, Paxton, was elected to fill the office for the remainder of the year.

A. M. Corwin, Chicago, spoke on the subject "Publicity."

O. O. Hall gave a very interesting paper on "Pneumonia."

W. R. Roberts gave a talk upon the treatment as carried out at the Modern Woodman Sanitorium of Colorado Springs, Colo.

Fifteen members and one visitor were present.

S. S. FULLER, Secretary.

MADISON COUNTY

The Madison County Medical Society met at the Moose Home in Granite City, February 2, 1917, with President Dr. J. B. Hastings in the chair; eighteen members present.

The secretary read a letter from State Secretary Gilmore, notifying the members that the date of the next state society meeting has been changed from May 15-17 to May 8, 9 and 10. The secretary was instructed to write to Gov. Lowden asking him to appoint a medical man to be the head of the proposed Department of Health.

Statement Red Cross Seals for 1916 by the secretary:

Total seals sold, 160,214, amounting to.....	$1,602.14
22½ per cent sent to state secretary.	$ 360.47
Paid to our local treasury.....	1,241.67
Total	$1,602.14 ..1,602.14

Statement received and placed on file.

Dr. Chas. G. Schmidt, of St. Jacob, presented a paper on "Pneumonia," giving in detail his experience in the treatment of this disease. The paper called out considerable discussion, led by Drs. Hamm, Schroeder, Sutter and Robertson. In the general discussion that followed, Drs. Wahl, Hirsch, Kiser, Ferguson and others took part.

It was a very interesting session on a very timely subject.

Adjourned to meet in Collinsville on the first Friday in March.

Personals

Dr. B. M. Pugh, of Clinton, recently recovered from pneumonia.

Dr. L. E. Hartrick of Seymour, recently fractured two ribs in a fall.

Dr. O. R. Wakefield, formerly of Spring Valley, has removed to Princeton.

Dr. John J. Lence, of Jonesboro, has recently recovered from a long sickness.

Dr. Julius Grinker has been appointed on the neurologic staff of Mercy Hospital.

Dr. Frank E. Lindahl, of Homer, is returning to New Orleans to practice.

Dr. Albert R. DeCosta, Bloomington, has been appointed physician to McLane county.

Dr. Herman Berry celebrated his one hundredth birthday anniversary, March 10.

Dr. Elmer M. Smith, of Georgetown and Danville, is taking a Florida trip for health and pleasure.

Dr. J. H. Franklin, of Spring Valley, is planing the erection of a modern office building and laboratory.

Dr. and Mrs. A. B. Middleton, of Pontiac, returned from California March 1, but he still thinks there is no place like Florida in the winter.

Mrs. Albert H. Hoy, wife of Dr. Albert H. Hoy, formerly of Chicago, was drowned after the torpedoing of the Cunard Liner Laconia, recently.

Dr. Horace B. Dunn, formerly of Rockford, was ship's surgeon of the Worestershire, an English ship which was torpedoed last month. The crew were landed safely.

Dr. John H. Long, dean of the school of pharmacy and professor of chemistry of Northwestern University, has been elected president of the Chicago Institute of Medicine.

Dr. Albert E. Mowry, of Chicago, addressed a meeting under the auspices of the Y. M. C. A., of Alton, March 11 on: "A Plain Talk on Sexual Hygiene and Venereal Diseases."

Dr. J. J. Hanmore, of Urbana, who was seriously injured in an automobile accident last November, spent the winter traveling and has returned home greatly improved in health.

Drs. Harry M. Richter and Jacob R. Buchbinder have received Red Cross medals of the third class from the German government in recognition of their services at the Base Hospital, Naumberg.

Dr. A. M. Corwin, Chicago, addressed the Iroquois-Ford Medical Society, March 6, on "The Tonsil Question" and "Publicity." He also addressed a large public gathering on "The Nose in Epidemic Colds."

Dr. J. Gordon Wilson has returned to Chicago after several months' army medical service in England and France. Dr. Wilson has been especially engaged in investigating the effects of high explosives and concussion on the ear.

Dr. Frank Billings has been compelled to resign as head of Base Hospital Unit No. 13, on account of ill health, and has recommended Dr. Arthur D. Bevan in his stead. Dr. Billings has gone to Pasadena, Cal., for two months, following his recovery from pneumonia.

Dr. C. St. Clair Drake, Springfield, secretary of the state board of health, was one of the speakers at the ninth annual meeting of the American Water Works Association at Urbana, March 13. March 14, Dr. Drake spoke before the Chicago Women's Club on "Midwifery and Infant Blindness."

News Notes

—The Peoria Public Health Nursing Association is making a house to house canvass for funds.

—St. Mary's Hospital, East St. Louis, has opened a dispensary for the care of diseases of the eye, ear, nose and throat.

—Homes for children, the so-called "baby farms" in Chicago, are placed under strict supervision by a recent ordinance.

—The Central Illinois C. C. M. & S. Club will hold its regular quarterly meeting in Peoria on Wednesday, April 18, 1917.

—The fund of $5,300,000 for the great medical institution of the University of Chicago is practically raised—except a little change.

—The Infant Welfare Society is endeavoring to raise $100,000 for fifty new infant welfare stations. Drs. Sadie Bay Adair and Walter H. Hoffman have charge of the movement.

—Governor Lowden has appointed Dr. C. St. Clair Drake, Director of Public Health. Dr. Drake has proven his preëminent qualifications for this responsible position by his excellent work as secretary of the State Board of Health.

—A bill introduced into the house by Representative Wm. H. H. Miller, Champaign, and in the senate by Hon. Henry N. Dunlap, proposes expenditures for the medical department of the University of Illinois amounting to $2,000,000 during the next decade.

—A hospital to cost about $100,000 is to be built by St. Anthony's Hospital, Rock Island, on the grounds adjoining the present infirmary. The new building will accommodate 150 patients, will be of fireproof construction, of brick with stone trimmings, and will be in conformity with the old building.

—Arrangements have been completed between Northwestern University Medical School and the Chicago Fresh Air Hospital for a four weeks' course on tuberculosis for the senior class in the medical school. Dr. Ethan A. Gray, medical superintendent of the hospital, has been appointed assistant professor in the university.

—Southern negroes, attracted by the high wages paid in the Union Stock Yards, are flocking to Chicago in large numbers. Investigators find that they work a few days, draw their pay and quit, sometimes on account of the "smell" in the yards. In many cases they live, eight or more, in a small room, in spite of the "smell."

—Major William N. Bispham, M. C., U. S. Army, delivered the first lecture in a course on military hygiene and sanitation at Northwestern University Medical School, March 19, at Rush Medical College, March 23, and at Loyola University, March 24. Two lectures each week are

to be delivered at each of the medical schools of the city.

—The Central Illinois C. C. M. & S. Club has completed arrangements for attending in a body the Illinois State Medical Society Meeting at Bloomington. This club is composed of Alumni of the Chicago College of Medicine and Surgery, and is located in Central Illinois. Headquarters will be established in the Illinois Hotel.

—Views of surgical operations and hospital work in the field hospitals in and around Saloniki were given by Surg.-Col. Alexander Primrose, professor of surgery at the University of Toronto, at the eighth annual banquet of the University of Toronto Alumni Association of Chicago, March 2. Dr. Hugh A. Cuthbertson was elected secretary-treasurer of the association.

—The criminal court is to have a psychopathic institute for which aid will be obtained from the Rockefeller Foundation. Judge Hugo Pam has been made representative of the criminal court judges on the committee to direct the work of the institution. The institution will be an extension of the Juvenile Psychopathic Institute, and will be supervised by Dr. Herman Adler.

—The council of the Chicago Medical Society on March 13 adopted a resolution stating that a shift for nurses to eight hours "would be to disrupt the efficiency of their work," and stating furthermore that nursing should not be governed by union labor regulations, but "is a special business and cannot be dictated to by laws other than those giving them the right to act as nurses."

—The eugenic marriage bills introduced in the legislature were badly defeated, in both house and senate. Such radical reforms require either a long process of public education or a sudden emergency to make their need convincing. But it is only a question of time when the rapid increase of the expense of State care of the criminal, defective and insane will compel action to reduce the supply.

—The first number of *Medicine and Surgery* is out. If the first number is a criterion for the numbers to follow we predict for it success. It has an able force of associate editors, and Dr. Philip Skrainka is its editor-in-chief. The first number is devoted entirely to surgical subjects, and presents them in a manner which would be creditable for any journal. The Journal is published in St. Louis.

—The Illinois Public Health and Welfare Association, which was organized at a meeting of the Better Community Conference at Urbana last fall, and which will bring together all of the governmental and extra-governmental health agencies of the state, will hold its first annual meeting at Springfield on April 12 and 13.

The program which has been prepared is an excellent one and will include Governor Frank O. Lowden, Dr. W. A. Evans, Dr. W. L. Noble, Dr. C. St. Clair Drake, Dr. John Dill Robertson, Dr. L. C. Taylor, Dr. C. W. East, Miss Caroline Van Blarcom, Miss Harriet Fulmer, Dr. J. W. Pettit and a large number of other well-known physicians, sanitarians, sanitary engineers, health officers, public service nurses and social workers.

This Conference takes the place of the health officers' schools or conferences held by some of the more progressive states, but is broader in its scope, adopting the policy of the present State Board of Health in bringing closely together all official and non-official health agencies.

The officers of the Association are: Dr. George Thomas Palmer, Springfield, president; Dr. John A. Robison, Chicago, honorary president; W. J. Allen, Waukegan; Dr. W. C. Clarke, Cairo; Dr. C. F. Ruediger, La Salle, vice-presidents, and Mr. Paul Hansen, Springfield, secretary-treasurer.

Marriages

FRANK FULTON MAPLE, M. D., to Miss Edith Marian Russell, both of Chicago, March 3.

ALFRED ADOLPH STRAUSS, M. D., to Miss Hilda Grunsfield, both of Chicago, March 27.

JOHN EDWARD SIEBEL, JR., M. D., Chicago, to Miss Pearl Meade of Los Angeles, at St. Louis, February 19.

LEMUEL PINCKNEY PETERS, M. D., Clayton, Ill., to Miss Minnie J. Lucas of Timewell, Ill., at Chicago, January 27.

Deaths

FRANK HANSON, M. D., Worden, Ill., Rush Medical College, 1888; aged 51; died in Joliet, Ill., recently, from pneumonia.

WILLIAM HENRY ALLEN, M. D., Pekin, Ill.; University of Buffalo, N. Y., 1870; aged 67; first health officer of Pekin; died at his home, January 31.

HARVEY LINDSEY HARRIS, M. D., Bellflower, Ill.; Rush Medical College, 1875; aged 70; died at his home, February 2, from carcinoma of the stomach.

CHESTER ARTHUR WIRN, M. D., Alton, Ill.; Rush Medical College, 1889; aged 57; died, February 21, in Cuba, Mo., where he had gone in hope of bettering his health.

JACOB BUTLER, M. D., East St. Louis, Ill.; Medical College of Evansville, Ind., 1878; aged 66; formerly a member of the Illinois State Medical Society; died at his home, March 2.

JAMES R. DEWEY, M. D., Chicago; Chicago Homeopathic Medical College, 1888; aged 85; also a lawyer; for forty-one years a teacher of Greek, Latin, geometry and astronomy in the West Division High School, Chicago; died at his home, January 31.

EDMOND H. AMES, M. D., Antioch, Ill.; Detroit Homeopathic Medical College, 1874; aged 70; a veteran of the Civil War; formerly a member of the Illinois State Medical Society; died at his home, March 7, from cerebral hemorrhage.

JOHN THOMAS CURTIS, M. D., Abilene, Kan.; Northwestern University Medical School, Chicago, 1867; aged 79; assistant surgeon of the Ninety-ninth Illinois Volunteer Infantry, during the Civil War; died in the State Soldiers' Home, Abilene, January 11.

FLORENCE LOUISA EVANS, M. D., East St. Louis, Ill.; Barnes Medical College, St. Louis, 1906; aged 41; a Fellow of the American Medical Association; a specialist in clinical pathology and bacteriology; died in Corpus Christi, Texas, March 7, from erysipelas.

JOSEPH EMIL HUBER, M. D., Peoria, Ill.; Northwestern University Medical School, Chicago, 1910; aged 49; a Fellow of the American Medical Association; a specialist in internal medicine; a member of the medical staff of Proctor Hospital and once president of the Illinois State Pharmaceutical Association; died in the Proctor Hospital, Peoria, February 27, from septicemia three days after an operation for cholelithiasis.

CHARLES F. SWAN, M. D., Chicago; Medical College of Ohio, Cincinnati, 1875; aged 64; a Fellow of the American Medical Association; a pioneer practitioner of South Chicago; chief of staff of the South Chicago Hospital; from 1900 to 1902 a member of the staff of Cook County Hospital; who established the first bank in South Chicago; died at his home, March 19, from cerebral hemorrhage.

Book Notices

THE NEWER METHODS OF BLOOD AND URINE CHEMISTRY. By R. B. H. Gradwohl, M. D., Director of the Pasteur Institute of St. Louis and the Gradwohl Biological Laboratories, St. Louis, and A. J. Blaivas, Assistant, formerly Technician in Pathological Chemical Laboratories, New York Post-Graduate Medical School and Hospital, etc. With sixty-five illustrations and four color plates. St. Louis, The C. V. Mosby Company, 1917. Price $3.50.

Dr. Gradwohl is more than qualified to write this new work on the chemistry of the blood and urine. This book contains all the latest and newest methods on the examination of the blood and urine. The subject, though scientific, is presented in a most practical manner, making it available for the general practitioner as well as the laboratory worker. For those wishing the latest on this subject, this book will fill the bill.

HANDBOOK OF SUGGESTIVE THERAPEUTICS, APPLIED HYPNOTISM, PSYCHIC SCIENCE. A Manual of Practical Psychotherapy, Designed Especially for the Practitioner of Medicine, Surgery, and Dentistry. By Henry S. Munroe, M. D., Omaha, Nebraska. Fourth edition, revised and enlarged, St. Louis: The C. V. Mosby Company, 1917. Price $5.00.

The fact that this work has gone through three editions, and now comes out with a fourth, bespeaks of its popularity. This new edition is greatly improved by the addition of new matter and considerable revision. Two entire chapters, one on "The Tie That Binds and the Urge That Drives," and the other on "Suggestion in Dentistry," have been added.

It is a work on suggestive therapeutics that can be easily read and understood, and it covers the field thoroughly. We believe it will continue a success.

THE SURGICAL CLINICS OF CHICAGO. Volume 1, Number 1 (February, 1917). Octavo of 221 pages, 83 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published bi-monthly. Price per year, paper, $10.00; cloth, $14.00.

The Saunders Company has just issued the first number of The Surgical Clinics of Chicago. The style and make-up of the volume are similar to those of the Murphy Clinics and the Medical Clinics of Chicago.

The clinicians of this number are:

Dr. A. D. Bevan—
- Gall-stone Disease
- Femoral and Diaphragmatic Hernias.

Dr. A. J. Ochsner—
- Goiter
- Femoral Hernia
- Hernias in Children.

Dr. E. Wyllys Andrews—
- Fracture of the Patella
- Three cases of Plastic Surgery.

Dr. L. L. McArthur—
- An Improvement in the Technic of Gastric Surgery.

Dr. Dean D. Lewis—
- Neurolysis and Nerve Suture
- Bleeding Nipple
- Congenital Pyloric Stenosis.

Dr. Carl Beck—
- Open Wound Treatment of Acute and Chronic Bone and Joint Infections.

New Treatment of Large Cavities After Empyema of the Chest.

Dr. Allen B. Kanavel—
Transplantation of Fascia Lata in Exstrophy of the Bladder.

Dr. D. N. Eisendrath—
Head Injuries
Carcinomatous Ulcer on Posterior Wall of Stomach.

Dr. Kellogg Speed—
Tendoplasty for Wrist-drop.

Dr. Samuel C. Plummer—
A Case of Calculous Anuria.

Dr. Edwin W. Ryerson—
Ankylosis of Elbow.

Dr. D. B. Phemister—
Echinococcus Cyst of the Liver
Central Fibroma of Mandible.

Each of these well known clinicians has his own particular method of teaching. For this reason we think these clinics will be more valuable than would be the clinics of one man. They will also cover a more diversified field. Aside from general surgery, they will cover the fields of gynecology, genito-urinary work and eye, ear, nose and throat diseases. In other numbers some forty clinicians of Chicago will contribute. Every physician will enjoy reading this number, and will find it of value.

CLINICAL TUBERCULOSIS. By Francis Marion Pottenger, A. M., M. D., LL. D., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California; Professor of Diseases of the Chest, College of Physicians and Surgeons, Medical Department, University of Southern California, Los Angeles, California. With a chapter on Laboratory Methods, by Joseph Elbert Pottenger, A. B., M. D., Assistant Medical Director, and Director of the Laboratory, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. In two volumes. Volume I—Pathological Anatomy, Pathological Physiology, Diagnosis and Prognosis. With one hundred and five text illustrations and charts, and six plates in colors. Volume II—Complications and Treatment. With sixty-two text illustrations and charts and four plates in colors. Price, $12.00 net. C. V. Mosby Company, St. Louis, 1917.

This two-volume work on tuberculosis, by an author who has had the clinical experience Dr. Pottenger has had, is necessarily going to give a large view, from many angles, of the disease, not usually seen by the general practitioner, the surgeon, or even the tuberculosis worker.

In the introduction the author makes a statement which is not usually considered, but which must be understood before the treatment of tuberculosis is going to be effective to any important degree, viz.: "If we are to make advances in our knowledge of tuberculosis we must take a broader view than that expressed by the prevalent ideas that tuberculosis is a disease due to the tubercle bacillus, which produces a group of tubercles in the lung, and that its cure comes about as a result of good food and open air." One reason treatment of tuberculosis so often fails is because the tubercle only is treated; we lose sight of the patient—the individual.

A strong feature of the work is the author's endeavor to show causes—etiology—for the pathological findings. Functional disorders are studied carefully.

The nervous system claims the author's attention to a marked degree, both as to the effect of the disease upon the nervous system, and its influence upon the cellular activity of the various organs.

Much attention is given to diagnosis of tuberculosis. The etiological classification of symptoms as taught by Dr. Pottenger is a marked advance in the study of tuberculosis, and when symptoms are studied with the etiology in view, a common sense treatment will more frequently result.

We are especially glad to note the author's methods of physical examinations, and the importance he places in such diagnostic methods. The therapy of tuberculosis is well discussed, particular emphasis being given to the fact that the individual needs the treatment, as well as the tuberculous lung.

Space forbids a review of this work which it deserves. We strongly recommend it to the profession and think every physician and surgeon should possess a copy.

COLLECTED STUDIES FROM THE DEPARTMENTS OF PATHOLOGY AND BACTERIOLOGY AND EXPERIMENTAL MEDICINE. University of Illinois College of Medicine, Chicago. Volume II. 1916.

The contents of this volume are as follows: Kidney Lesions in Chronic Anaphylaxis; Resuscitation by Means of Preserved Living Erythrocytes in Experimental Illuminating Gas Asphyxia; A Mixed Tumor (Chronic-Fibro Epithelioma) of the Choroid Plexus; Bacteriology of Chronic Prostatitis and Spermatocystitis; Hemolytic Streptococci Found in Milk; Hemolytic Icterus; On Certain Relations of the Lower Animals to Human Disease; Streptothrix Infections and Their Relation to Tuberculosis; The Permeability of the Gastro-Intestinal Wall to Infection with Sporothrix Schenckii; Epidemics of Pemphigus Neonatorum in Chicago; Bacteriology of Pemphigus Neonatorum; Proteolytic Ferments of the Blood Serum in Tabes Dorsalis and General Paresis; Thymus Death; Treatment of Lobar Pneumonia with Autolyzed Extract of Pneumococcus; Immunologic Studies of Hodgkin's Disease; The Effect of Continuous Electric Light in Experimental Arthritis; Studies in Experimental Scurvy in Guinea Pigs; Experimental Scurvy Produced in Guinea Pigs by Feeding Milk and Milk Products; The Wassermann Test in the Medical Dispensary; The Value of the Wassermann Test in Pregnancy; Full Term Ectopic Gestation; The Role of Cholesterol in Pathology.